DOCUMENT RESUME

ED 416 212 TM 028 064

AUTHOR	Golden, Anthony J.
TITLE	Program for Area Concentration Achievement Testing.
INSTITUTION	Austin Peay State Univ., Clarksville, TN.
SPONS AGENCY	Fund for the Improvement of Postsecondary Education (ED), Washington, DC.
PUB DATE	1997-00-00
NOTE	129p.
CONTRACT	P116B81711
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	MF01/PC06 Plus Postage.
DESCRIPTORS	*Achievement Tests; Course Evaluation; Evaluation Methods; Federal Aid; Grants; Higher Education; *Intellectual Disciplines; Surveys; *Test Construction; Test Use
IDENTIFIERS	*Area Concentration Achievement Test; *Program for Area Concentration Achievement Testing

ABSTRACT

The Program for Area Concentration Achievement Testing (PACAT) produces the cooperative assessment instrument known as the Area Concentration Achievement Test (ACAT). The ACAT uses a model designed specifically to measure curricular strengths and weaknesses and to provide this information at the departmental level. PACAT has developed 57 descriptive curriculum patterns for 12 disciplines based on survey information from 5,699 academic departments. The number of ACATs administered annually has grown from 400 in 1988 to over 2,600 in 1992. The PACAT was developed with support from the Fund for the Improvement of Postsecondary Education (FIPSE), and this report is the final report under the FIPSE grant. During the period of FIPSE support, PACAT staff published 3 articles and made 23 presentations concerning the project. PACAT staff also conducted workshops or discussion groups and assisted in the conduct of two doctoral dissertations and one master's thesis. Approximately 9,000 sets of survey results and curricula have been distributed by PACAT. Test items for the ACAT are developed by working with faculty in participating departments to construct items that reflect their expectations of performance at a level appropriate for graduating seniors. Area concentration achievement tests are available in the following fields: agriculture, art, biology, communication, literature in English, political science, psychology, and social work. It is a measure of PACAT's success that it continues beyond the FIPSE support period, working with over 100 academic departments in 28 states. The body of the report contains: (1) "Project Overview"; (2) "Purpose"; (3) "Background and Origins"; (4) "Project Descriptions"; (5) "Project Results"; and (6) "Summary and Conclusions." Nine appendixes present supplemental information, including content area survey descriptions, lists of participants and ACAT users, and sample materials. (SLD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 416 212

Program for Area Concentration Achievement Testing

Grantee Organization:

Austin Peay State University
College Street
Clarksville, TN 37044

Grant Number: P116B81711

Project Dates:

Starting Date: August 1, 1988
Ending Date: July 31, 1992
Number of Months: 48 (36 + 12 month no cost extension)

Project Director:

Anthony Golden
Department of Psychology
Austin Peay State University
Clarksville, TN 37044
Telephone: (615) 648-7451

FIPSE Program Officer(s):

Constance Cook
Lewis Greenstein

Grant Award:

Year 1	$83,085.00
Year 2	$85,654.00
Year 3	$88,400.00
Year 4	(no cost extension)
Total	$257,139.00

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

TM 028 064

BEST COPY AVAILABLE

Table of Contents

Summary 1

Executive Summary 2

- Project Overview 2
- Purpose 2
- Background and Origins 2
- Project Descriptions 3
- Project Results 3
- Summary and Conclusions 4

Body of Report 5

- Project Overview 5
- Purpose 6
- Background and Origins 7
- Project Descriptions 8
- Project Results 9
- Summary and Conclusions 17

Appendices 19

- I: Information for FIPSE 19
- II: PACAT Staff 1988-92 21
- III: Departments Using the ACAT 23
- IV: Content Area Surveys and Curriculum Patterns 27
- V: Publications, Presentations and Workshops 59
- VI: Results of the Assessment Planning Survey 63
- VII: Sample Materials Developed by PACAT 65
- VIII: Sample Score Report 84
- IX: Reports of Consultants and Other Comments 93

Program for Area Concentration Achievement Testing

Summary

PACAT produces the cooperative assessment instrument known as the Area Concentration Achievement Test (ACAT). The ACAT uses a model designed specifically to measure curriculular strengths and weaknesses and to provide this information at the departmental level. PACAT has developed 57 descriptive curriculum patterns for 12 disciplines based upon survey information from 5,699 academic departments. Over 9,000 sets of information concerning the findings have been distributed by mail and in person. The number of ACATs administered annually has gone from 400 in 1988 to over 2,600 in 1992. PACAT is continuing to work with over 100 academic departments in 28 states.

Anthony J. Golden, Ph.D.
PACAT, Box 4568
Austin Peay State University
Clarksville, TN 37044

Phone (615) 648-7451
FAX (615) 648-7475
BITNET ANTHONY@APSU

Area Concentration Achievement Tests
- Agriculture
- Art
- Biology
- Communication
- Literature in English
- Political Science
- Psychology
- Social Work

Program for Area Concentration Achievement Testing

Executive Summary

Project Overview:

The Project for Area Concentration Achievement Testing (PACAT) was developed during 1988-92 with support from the Fund for the Improvement of Post Secondary Education. The methodologies used by PACAT were developed by Dr. Anthony Golden, Director of PACAT, to address the need for direct faculty involvement in a system for the evaluation of disciplinary curricula through standardized instruments. PACAT is responsible for the production and management of the faculty consortium derived measurement instruments known collectively as the Area Concentration Achievement Tests (ACAT).

Beginning with a consortium of 5 Psychology Departments in 1983, PACAT now serves 108 departments in 8 disciplines across a 28 state area. FIPSE funds have permitted PACAT to add instruments in 5 disciplines, with a sixth ready for distribution, and to complete the preliminary work necessary to add 2 more. Over 7,000 ACATs have been administered. FIPSE funds also were used to conduct surveys of 12,500 academic departments concerning their curricular emphases. The 5,699 returned surveys have been used to construct 57 descriptive curricula for 12 academic disciplines. Approximately 9,000 sets of survey results and curricula have been distributed nationally to date.

During the period of FIPSE support, PACAT staff published 3 articles and made 23 presentations concerning the project. In addition, PACAT staff conducted 7 workshops and/or discussion groups at various sites. PACAT assisted in the conduct of 2 doctoral dissertations and 1 master's thesis and was featured in two additional publications which dealt with undergraduate teaching.

It is a measure of PACAT's success that it continues beyond the FIPSE support period and is still exhibiting strong growth.

Purpose:

According to the Bulletin of the American Association for Higher Education, by 1987 67% of the states had or were considering assessment mandates or initiatives. A more recent survey conducted by ACE and Winthrop University suggests that by 1990, approximately 89% of institutions were either planning or implementing comprehensive assessment programs primarily using local measures (39%) and performance based measures (38%). The most frequently cited reasons for initiating outcomes assessment were accrediting board standards (46%) and state education policies (39%).

It has been asserted that the outcomes assessment movement should address individual student learning and growth across the academic career using "authentic" methods of assessment that most closely resemble what a student normally does in the classroom. While part of the outcomes assessment movement will undoubtedly always be the measurement of individual student learning, the emphasis on the evaluation of institutional priorities and curricula makes it essential that specialized measurement models also be available for this purpose.

A curriculum assessment instrument must reflect the goals of the department, including different concentrations within a major. Since originally formulating a response to these needs, the Project for Area Concentration Achievement Testing (PACAT) has obtained assessment planning information from 1,290 academic departments. Although it was originally anticipated that a number of departments would elect to use standardized instruments, the percentage has turned out to be considerably larger than expected (55%).

Background and Origins:

In 1983, Dr. Anthony Golden developed a model for major field assessment for a consortium of Psychology departments. By 1988, when PACAT began receiving support from FIPSE, the approach had been extended to consortia in Social Work and Political

Science and the project was providing instruments to academic departments in Tennessee, Kentucky, and Georgia. The model gained widespread acceptance as a result of its ability to meet differing departmental needs; to provide curriculum specific feedback and assistance with interpretation, and because of its cost-effectiveness.

Austin Peay State University is the smallest of the Tennessee Board of Regents 4 year institutions. As a result, it had few resources to contribute toward expanding the project. Furthermore, the largely extramural nature of PACAT's work made it essential that it actively seek external sources of funding while increasing its own support through user fees. The bulk of the funds for national expansion of the project came from FIPSE, with Austin Peay State University contributing additional reassigned time for Dr. Golden as well as office space, long distance telephone service, and over $14,000 in computer and office equipment.

Project Description:

PACAT is responsible for producing the cooperative assessment instrument known as the Area Concentration Achievement Test (ACAT). The ACAT is unique in that it uses a model designed specifically to measure curriculular strengths and weaknesses and to provide this information to faculty at the departmental level.

Through a series of national surveys, PACAT has obtained information concerning curricular structure and content area requirements from academic departments in 15 different disciplines. The information has been used to match departments with similar content requirements for the purpose of cooperative assessment using the ACAT. At the present time, this represents one of the largest data bases available concerning what is actually being taught and required at the individual departmental level.

Test items for the ACAT are obtained by working with faculty in participating departments to construct items which reflect their expectations of performance at a level appropriate for graduating seniors. In this way, faculty have a direct involvement in determining the content of the instrument. Information generated using this approach has greater credibility with the faculty using the ACAT.

The ACAT is uniquely structured to be adapted to a variety of departmental requirements. It provides many of the benefits of both nationally normed and locally developed instruments, producing information specifically applicable to the individual department within a larger national context of departments with similar curricula. The use of this type of assessment instrument is beginning to have a significant positive impact on campuses across the nation.

Project Results:

PACAT primarily is responsible for developing materials which can act as an agent of change on other campuses. As such, it is often difficult to determine the precise impact of the project with respect to change. We can, however, estimate its impact by examining the ways in which the ACAT is being used.

The ACAT in social work currently is being used by a number of departments to comply with the Council for Social Work Education's (CSWE) "Baccalaureate Interpretive Guidelines Evaluative Standard 2-Outcomes" for program affirmation and reaffirmation. The College of Social Work at Ohio State University currently is using the ACAT for reaffirmation and on an experimental basis to determine the "comparability of the preparation in foundation content for ... newly initiated extended campus programs with [the] main campus program in Columbus".

The ACATs in Psychology and Social Work have been or are being used at Regis University, Austin Peay State University, Pikeville College, and Jamestown College to evaluate entry level knowledge and the degree to which an introductory level course contributes to the development of the knowledge base in the discipline. Fourteen institutions currently are using the ACAT as part of a pre- post-test plan for evaluating the impact of the major on development of the disciplinary knowledge base. The University of Alabama has used the ACAT in psychology to assess the efficacy of a special course intended to prepare graduate students to teach an introductory psychology course. Finally, ACATs have served as the basis for two dissertations and a masters thesis.

PACAT has developed 57 descriptive content area requirement patterns for 12 disciplines based upon information from 5,699 academic departments nationally. Over 9,000 sets of information concerning the survey findings and curricula have been distributed by mail and by PACAT staff at various meetings and workshops.

Of the six new instruments which were to have been developed and fielded, six were developed but only five were fielded during the period of FIPSE funding. Revisions of the instruments to conform to the national surveys was accomplished to provide all new versions requested by participating departments.

The number of ACATs administered annually has gone from 400 in the first year of FIPSE funding to over 2,600 in 1992. Project revenues have also grown from zero in 1988 to over $17,000 in 1992. Although it has exhibited excellent growth since the receipt of FIPSE support in 1988, PACAT has not expanded at the rate anticipated at that time. The reason appears to be that the planning and implementation of outcomes assessment at the departmental level has lagged behind state mandates and institutional decision making.

In addition to the evaluation of the project's success against the stated goals and objectives, other indications of the success of the project can be found in its ability to disseminate its findings to the academic community nationally. PACAT staff have published 3 articles and made 23 presentations, conducting 6 workshops and/or discussion groups during the period of FIPSE funding.

PACAT was formally evaluated by Drs. Reid Johnson, Gary Pike, and Jason Millman. Drs. Johnson and Pike pronounced the project to be in excellent condition and making a major contribution to higher education curricular reform. Dr. Millman of Cornell University reviewed the statistical procedures used by the project and found that, although far from psychometrically pure, they were innovative and appropriate to the task of outcomes assessment and curricular examination and worth pursuing.

Summary and Conclusions:

Overall, PACAT achieved its primary goal which was to make available nationally outcomes assessment instruments for the major which were generated by participating faculty and reflected individual departmental curricular emphases. The success of PACAT has been such that it is continuing to provide services to over 100 institutions beyond the termination of FIPSE support. Evaluations of the project against the goals and objectives set forth in the original application to FIPSE indicate that PACAT was able to meet or exceed nearly all of them. The only exceptions are where it has become evident that national growth in outcomes assessment is proceeding at a slower than anticipated pace, impacting negatively on PACAT's growth.

Members of the PACAT staff have been actively representing the project at assessment meetings, disciplinary meetings, and on individual campuses. Given the small size of PACAT's staff, an excellent job has been done to disseminate information about the project to the widest possible audience.

External reviewers of the project, both formal and informal, have been exceedingly positive. The general impression is that PACAT has made a positive impact on outcomes assessment and that the information provided through the content area surveys, descriptive curricula and test results have provided essential information to faculty making decisions at the departmental level.

PACAT is continuing to provide its services. At this time, plans are being made to open new consortia in Sociology and Industrial Engineering. The new ACAT in History will be fielded in December 1992 and should be in full circulation by October 1993. We are continuing to work with the consortium that is being organized in Criminal Justice. As we have done for the past 4 years, we will continue to provide information to departments concerning outcomes assessment, assessment in the major, our national surveys, and other national and institutional assessment projects that might serve their needs. Because the evaluation of the project is built in to its routine operations, it will continue with the project.

Program for Area Concentration Achievement Testing

Final Report

Project Overview:

The Project for Area Concentration Achievement Testing (PACAT) was developed during 1988-92 with support from the Fund for the Improvement of Post Secondary Education. The methodologies used by PACAT were developed by Dr. Anthony Golden, Director of PACAT, to address the need for faculty vestment in a system for the evaluation of curricula through standardized instruments. PACAT is responsible for the production and management of the faculty consortium derived instruments known as the Area Concentration Achievement Tests (ACAT).

Beginning with a consortium of 5 Psychology Departments in 1983 and extending to additional consortia in Social Work and Political Science by 1987, PACAT now serves 108 departments in 8 disciplines across a 28 state area (see Appendix III). FIPSE funds have permitted PACAT to add instruments in 5 disciplines, with a sixth ready for distribution, and to complete the preliminary work necessary to add 2 more. Over 7,000 ACATs have been administered.

FIPSE funds also were used to conduct surveys of 12,500 academic departments concerning their curricular emphases. The 5,699 returned surveys have been used to construct 57 descriptive curricula for 12 academic disciplines (see Appendix IV). Approximately 9,000 sets of survey results and curricula have been distributed nationally to date.

During the period of FIPSE support, PACAT staff published 3 articles and made 23 presentations concerning the project. In addition, PACAT staff conducted 7 workshops and/or discussion groups at various sites. PACAT assisted in the conduct of 2 doctoral dissertations and 1 master's thesis and was featured in two additional publications which dealt with undergraduate teaching. (see Appendix V)

It is a measure of PACAT's success that it continues beyond the FIPSE support period and is still exhibiting strong growth.

Purpose:

In 1979, the American Association of State Colleges and Universities (AASCU), supported by the Fund for the Improvement of Post Secondary Education (FIPSE), began the Academic Program Evaluation Project. In the same year, the Tennessee Higher Education Commission introduced a performance funding formula to encourage the evaluation and improvement of academic programs. A 1984 report from the National Institute of Education supported the use of assessment to determine whether or not educational goals were being met. In 1986, the AASCU Conference on Legislative Action and Assessment summarized APEP and introduced additional models, including the ACAT, developed at non-APEP institutions. The same year, the American Association for Higher Education, with support from FIPSE, held the first Conference on Assessment in Higher Education.

According to the Bulletin of the American Association for Higher Education[1], by 1987 67% of the states had or were considering assessment mandates or initiatives. A more recent survey conducted by ACE and Winthrop University[2] suggests that by 1990, approximately 89% of institutions were either planning or implementing comprehensive assessment programs primarily using local measures (39%) and performance based measures (38%). The most frequently cited reasons for initiating outcomes assessment were accrediting board standards (46%) and state education policies (39%).

It has been asserted that the outcomes assessment movement should address individual student learning and growth across the academic career using "authentic" methods of assessment that most closely resemble what a student normally does in the classroom.[3]

---

1. March, 1987.

2. A preliminary report appears in *The Exchange*, South Carolina Higher Education Assessment Network, Winter 1990. The results also were presented as part of Larson, R. (moderator), Johnson, R.(*), Prus, J.(*), Nichols, J., and Wolff, L. *Who's Doing What and Why? Results of Two National Assessment Surveys*. Sixth AAHE Conference on Assessment in Higher Education, San Francisco, June 1991.

3. Cross, K. (moderator), Ewell, P., Mentkowski, M., and Moran, E. *Conceptual Frameworks for Assessment - Catching Theory up With Practice*. Sixth AAHE Conference on Assessment in Higher Education, San Francisco, June 1991.

While part of the outcomes assessment movement will undoubtedly always be the measurement of individual student learning, the emphasis on the evaluation of institutional priorities and curricula makes it essential that specialized measurement models also be available for this purpose.

A curriculum assessment instrument must reflect the goals of the department, including different concentrations within a major.[4] Standardized tests with fixed content yield little usable information in this context. Departments often are unable to make meaningful comparisons of their performance to that of departments with similar curricula or to their own performance in previous years. Norm-referenced scores may indicate a department's relative standing but can be misleading with respect to its actual level of performance. To provide a more complete and accurate picture of departmental performance, a criterion-referenced, percent-correct score is also needed.

Since originally formulating a response to these needs, the Project for Area Concentration Achievement Testing (PACAT) has obtained assessment planning information from 1,290 academic departments (see Appendix VI). Although it was originally anticipated that a number of departments would elect to use standardized instruments, the percentage has turned out to be considerably larger than expected. On the other hand, our experience also suggests that at least 2 years and sometimes 3 or more years elapse between the time that a department begins its dialogue concerning assessment and the time that it begins to implement a plan.

Background and Origins:

In 1983, Dr. Anthony Golden developed a model for major field assessment for a consortium of Psychology departments. By 1988, when PACAT began receiving support from FIPSE, the approach had been extended to consortia in Social Work and Political

---

[4] Golden, A. (moderator), Smith, M., Cone, A., and Kidda, M. *The Area Concentration Achievement Test (ACAT): Different Strategies for Assessing the Psychology Major.* Sixth AAHE Conference on Assessment in Higher Education, San Francisco, June 1991.

Science and the project was providing instruments to academic departments in Tennessee, Kentucky, and Georgia. The model, based on the principle that academic assessment should originate from within the academic community, gained widespread acceptance as a result of its ability to meet differing departmental needs; to provide curriculum specific feedback and assistance with interpretation, and because of its cost-effectiveness.

PACAT originally was organized as one of several functions of the Behavioral Sciences Research Group at Austin Peay State University, organized directly under the Vice-President for Academic Affairs. Dr. Golden was provided with 1/12 reassigned time (equivalent to one 3 quarter hour course per year), a 1/2 time graduate assistant, mainframe computer access, and some copying costs. However, the increasing volume of telephone calls and written requests for information and assistance with new instruments made it evident that significant additional support was needed.

Austin Peay State University is the smallest of the Tennessee Board of Regents 4 year institutions. As a result, it had few resources to contribute toward expanding the project. Furthermore, the largely extramural nature of PACAT's work made it essential that it actively seek external sources of funding while increasing its own support through user fees. The bulk of the funds for national expansion of the project came from FIPSE, with Austin Peay State University contributing additional reassigned time for Dr. Golden as well as providing 200 square feet of new office space, enhanced telephone service, and over $14,000 in computer and office equipment.

Project Description:

PACAT is a national project, created largely through FIPSE support, responsible for producing the cooperative assessment instrument known as the Area Concentration Achievement Test (ACAT). The ACAT is unique in that it uses a model designed specifically to measure curriculular strengths and weaknesses and to provide this information to faculty at the departmental level.

Through a series of national surveys, PACAT has obtained information concerning curricular structure and requirements from academic departments in the fields of art, biology, chemistry, communications, criminal justice, English literature, geology, history, mathematics, physics, political science, psychology, public management, social work, and sociology (see Appendix IV). The information has been used to match departments with similar content requirements for the purpose of cooperative assessment using the ACAT. At the present time, this represents one of the largest data bases available concerning what is actually being taught and required at the individual departmental level.

Test items for the ACAT are obtained by working with faculty in participating departments to construct items which reflect their expectations of performance at a level appropriate for graduating seniors. In this way, faculty have a direct continuing vestment in the content of the instrument. Test scores generated using this approach have greater credibility with the faculty in the departments using the ACAT and are therefore more likely to lead to meaningful reforms.

The ACAT is intended primarily as a tool by which to measure curricular structure and integrity, although it can be used to assess individual student performance. The test is uniquely structured to be adapted to a variety of departmental emphases and requirements. The ACAT provides many of the benefits of both nationally normed and locally developed instruments, producing information specifically applicable to the individual department within a larger national context of departments with similar curricula. The use of this type of assessment instrument is beginning to have a significant positive impact on campuses across the nation.

Project Results:

PACAT primarily is responsible for developing materials which can act as an agent of change on other campuses. As such, it often is difficult to determine the precise impact of the project with respect to change. We can, however, estimate its impact by examining the ways in which the ACAT is being used.

The ACAT in social work currently is being used by a number of departments to comply with the Council for Social Work Education's (CSWE) "Baccalaureate Interpretive Guidelines Evaluative Standard 2-Outcomes" for program affirmation and reaffirmation.[5] The College of Social Work at Ohio State University currently is using the ACAT for reaffirmation and on an experimental basis to determine the "comparability of the preparation in foundation content for ... newly initiated extended campus programs with [the] main campus program in Columbus"[6].

The ACATs in Psychology and Social Work have been or are being used at Regis University, Austin Peay State University, Pikeville College, and Jamestown College to evaluate entry level knowledge and the degree to which an introductory level course contributes to the development of the knowledge base in the discipline. Fourteen institutions currently are using the ACAT as part of a pre- post-test plan for evaluating the impact of the major on development of the disciplinary knowledge base. The University of Alabama has used the ACAT in psychology to assess the efficacy of a special course intended to prepare graduate students to teach an introductory psychology course. Finally, ACATs have served as the basis for two dissertations and a masters thesis.

The success of this project must also be evaluated against its original goals and the objectives by which they were to be achieved (see original application).

Goal 1: To determine the appropriate core courses and content area emphases for 24 separate academic disciplines through the use of a two stage multi-state survey. The first stage will provide information concerning the content areas required for the major at responding institutions. The second stage will ascertain relative emphases of the content areas and will statistically determine the smallest number of common patterns of content areas which best represent the largest number of departments.

---

[5] Golden, A., Carter, G., and Ferraro, E. *The ACAT: A Model for Consortium Based Outcomes Assessment in Social Work.* Council for Social Work Education Annual Program Meeting, Kansas City, MO, 1992.

[6] Toomey, personal communication, 1992

BEST COPY AVAILABLE

Information concerning both stages of the process will be reported back to participating departments.

Objective 1. To achieve a 25% response rate (minimum of 500 departments per year) on the Phase 1 surveys mailed to 2,000 departments representing eight different academic disciplines at public and private institutions in a 14-state region by the end of each project year.

Outcome. An overall response rate of 45.6% (5,699 departments) was achieved for the 12,500 surveys mailed to departments in a total of 15 disciplines. Although the original objective called for surveys to be sent to departments in 24 disciplines, the surveys were extended to 50 states, the District of Columbia, and the territories. Both the number of surveys sent and the number received exceed the objective.

Objective 2. To achieve a 65% response rate (325 departments per year) on the Phase 2 survey of at least 500 Phase 1 respondents by the end of each project year.

Outcome. During the first year of funding, 367 departments in Psychology and Social Work were sent survey results and 101 (27.5%) returned completed Phase 2 surveys. This rate was well below that called for by the objective. During the second year, 1394 sets of Phase 1 results were sent out to participating departments and 495 (35.5%) completed Phase 2 surveys were returned. Subsequently, the Phase 2 surveys were incorporated into the original mailing and were routinely sent back by departments with the original curriculum survey portion. An additional 2,375 sets of results were prepared during the no cost extension period but for technical reasons will not be mailed until after November 1, 1992. In order to maximize dissemination, results of the surveys also were sent to 1,270 institutional assessment coordinators in January 1991.

Summary. The project met and exceeded this goal during the period of FIPSE funding. PACAT has developed 57 descriptive curricular patterns for 12 disciplines based upon information from 5,699 academic departments nationally. Over 9,000 sets of information concerning the survey findings and curricula have been distributed with Phase 2 surveys, the assessment coordinator mailing, through routine correspondence, and by PACAT staff at various meetings and workshops.

Goal 2: To construct Area Concentration Achievement Tests (ACATs) which conform, for each discipline, to the patterns identified through Goal 1. Goal 2 includes the creation and maintenance of pools of test items submitted by faculty members of the participating institutions and the use of the item pools for the construction and revision of the tests.

Objective 3. To create test item pools in a minimum of three additional disciplines, as a result of submission of test items by participating departments (total of 6) by the end of project years 2 and 3.

Outcome. Test item pools have been created in 6 new disciplines: art; biology; history; literature in English; communications; and agriculture. This brings the total number of pools to 9 rather than the 6 called for by this objective.

Objectives 4 and 5. To develop ACATs in a minimum of two additional disciplines in year 2 and four additional disciplines in year 3.

Outcome. Five new ACATs were developed and fielded in the areas of agriculture, art, communications, literature in English and biology. A sixth ACAT in history was prepared but will not be fielded until December 1992.

Objective 6. To increase the number of items in the 4 extant test item pools (at the time of writing, Psychology, Political Science, Geology, and Social Work) by an average of 10% annually, as a result of submission of test items by participating departments by the end of each project year.

Outcome. This goal has only partially been met. The following items were added to the item pools.

Items Added to the Item Pools		
Political Science	640	(+73%)
Psychology	255	(+11%)
Social Work	0	

The item pool for Geology has been retired due to an inability to obtain clear assignment of copyright to PACAT.

Objective 7. To revise the contents of all of the currently available ACATs (at the time of writing in 1988, Psychology, Political Science, and Social Work) to conform to the information determined in the project surveys by the end of project year 2.

Outcome. This objective has only partially been met. Overall content revisions were made in all three instruments. Furthermore, the ACATs in Psychology have been revised to conform to 5 of the 9 curricula identified. The remaining 4 patterns have not been requested. No requests have been made for the ACAT in political science in any format other than the original. A similar problem has been encountered with the ACAT in Social Work.

Summary. The project partially achieved Goal 2. Of the six new instruments which were to have been developed and fielded, six were developed but only five were fielded during the period of FIPSE funding. We also were unable to obtain any new items in Social Work and obtained fewer than the projected number of items in Psychology. Revisions of the instruments to conform to the national surveys were accomplished to provide all new versions requested by participating departments.

Goal 3: To provide the examinations constructed in Goal 2 to participating departments and to serve as a centralized coordination point for scoring and test production. This goal also will provide for the compiling of inter-institutional normative data for test evaluation.

Objective 8. *To obtain participation in PACAT of departments from 3 additional states outside of Tennessee by the end of each project year for a total of 9 new states.*

Outcome. PACAT has exceeded this objective considerably by adding departments in 25 new states during the period of FIPSE funding.

Objective 9. To obtain 75% participation (240 departments in at least 2 new disciplines per year) of each year's Phase 2 survey respondents (325) in the ACAT testing program by the end of each project year.

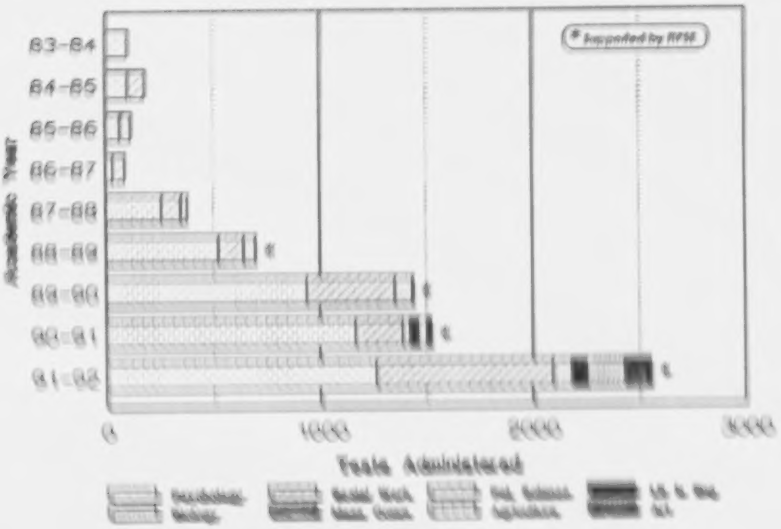
Outcome. Although PACAT has experienced considerable growth (also see graph accompanying Objective 10 below), this objective was not met. A total of 97 new departments joined PACAT consortia during the period of FIPSE funding. A complete list of participating departments is included in Appendix III.

Departments using the ACAT	
Agriculture (New 1992)	1
Art (New 1992)	1
Biology	7
Literature in English	3
Mass Communication	8
Political Science	9
Psychology	43
Social Work	36
TOTAL	108

Objective 10. To increase the number of ACATs administered annually by 2,500 by the end of project years 2 and 3.

Outcome. The number of ACATs administered annually is still below 3,000 although significant growth continues to take place.

ACATs Administered Annually



Summary. Although it has exhibited excellent growth since the receipt of FIPSE support in 1988, PACAT has not expanded at the rate anticipated at that time. The reason appears to be based upon a number of factors which were not apparent in 1988 and which are not under the control of this project. The planning and implementation of outcomes assessment at the departmental level

BEST COPY AVAILABLE

appears to have lagged well behind state mandates and institutional decision making. Our experience has been that it often takes 1 to 2 years for a department to reach a consensus concerning a comprehensive assessment plan. Since PACAT works directly with faculty whenever possible, this has considerably slowed our rate of growth. The recent recession has delayed implementation on a number of campuses and forced only partial implementation on others. Finally, faculty are extremely skeptical of "advertised" assessment methodologies, preferring instead to hear from their colleagues about new ideas and techniques. Until recently, the professional societies were virtually silent on the issue of assessment, effectively eliminating any formal exchange of information on the topic among teaching faculty.

Other Areas of Evaluation: *In addition to the formal evaluation of the project's success against the stated goals and objectives, other indications of the success of the project can be found in its ability to disseminate its findings to the academic community nationally.*

Publications by PACAT staff (see Appendix V): 3
Presentations by PACAT staff (see Appendix V): 23
Workshops/Discussion Groups by PACAT staff (see Appendix V): 6
Other Regional/National Meetings attended by PACAT staff: 3

Interestingly enough, it has indirectly come to our attention that at least two sessions have been held at disciplinary meetings within the past year which concerned the ACAT but which were organized by PACAT users not by PACAT staff. The presentations in Social Work and Psychology have resulted in a number of telephone calls, all of which have been quite favorable.

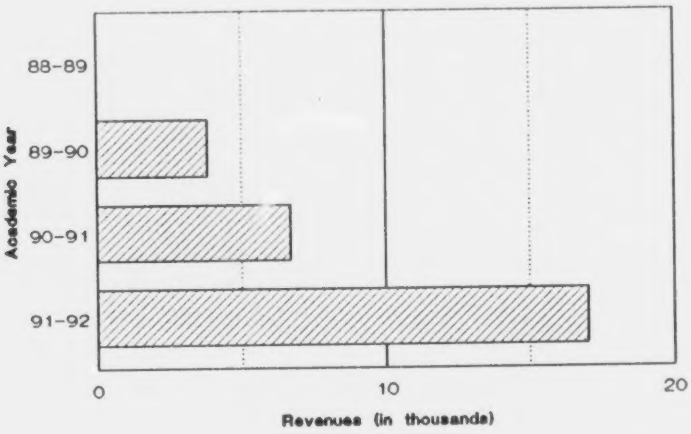
PACAT was evaluated by three consultants. Drs. Reid Johnson, Gary Pike, and Jason Millman were charged with evaluating PACAT's contributions to outcomes assessment, the steps necessary to help insure continuation of the project beyond the FIPSE funding period, and the psychometric soundness of the assessment procedures themselves (see Appendix IX).

Drs. Johnson and Pike pronounced the project to be in excellent condition and making a major contribution to higher education curricular reform. Dr. Millman of Cornell University reviewed the statistical procedures used by the project and found that, although far from psychometrically pure, they were innovative and appropriate to the task of outcomes assessment and curricular examination.

In spring of 1992, PACAT requested all participating departments to evaluate the services that it provides. Although a dishearteningly small number, the letters which were received as well as several unsolicited comments have been included in Appendix IX. The letters are very positive and speak well of PACAT's ability to meet the needs of outcomes evaluation.

Revenues received by the project for its services during the period 1988-92 are also indicative of the success of PACAT and its substantial growth during the period of FIPSE support.

PACAT Annual Revenues



Summary and Conclusions:

Overall, PACAT achieved its primary goal which was to make available nationally outcomes assessment instruments for the major which were generated by participating faculty and reflected individual departmental curricular emphases. The success of PACAT has been such that it is continuing to provide services to over 100 institutions beyond the termination of FIPSE support. Evaluations of the project against the goals and objectives set forth in the original application to FIPSE indicate that PACAT was able to meet or exceed nearly all of them. The only exceptions are where it has become evident that national growth in outcomes assessment is proceeding at a slower than anticipated pace and has impacted on PACAT's rate of growth as well.

Members of the PACAT staff have been actively representing the project at assessment meetings, disciplinary meetings, and on individual campuses. Given the small size of PACAT's staff (see Appendix II), an excellent job has been done to disseminate information about the project to the widest possible audience.

External reviewers of the project, both formal and informal, have been exceedingly positive. The general impression is that PACAT has made a positive impact on outcomes assessment and that the information provided through the content area surveys, descriptive curricula and test results have provided essential information to faculty making decisions at the departmental level.

PACAT is continuing to provide its services. At this time, plans are being made to open new consortia in Sociology and Industrial Engineering. The new ACAT in History will be fielded in December 1992 and should be in full circulation by October 1993. We are continuing to work with the consortium that is being organized in Criminal Justice. As we have done for the past 4 years, we will continue to provide information to departments concerning outcomes assessment, assessment in the major, our national surveys, and other national and institutional assessment projects that might serve their needs. Because the evaluation of the project is built in to its routine operations, it will continue with the project.

APPENDIX I: Information for FIPSE

BEST COPY AVAILABLE

Several lessons have been learned from this project which may assist FIPSE or other potential Project Directors. Perhaps the most important is that, for all we perceive outcomes assessment as a national movement and a pervasive part of the academic dialogue, our perception may be distorted. Although assessment coordinators and many senior administrators support outcomes assessment, departmental faculty are still suspicious of the process and feel themselves to be largely left out of the formulation of institutional policy with regard to assessment. Although there are many notable exceptions to this generalization, it would appear that outcomes assessment still must gain additional credibility with the academic disciplines before its potential can be fulfilled.

A related problem derives from the observation that many of the larger research institutions are only remotely involved in disciplinary assessment. The officers of professional organizations tend to be drawn from the ranks of recognized researchers and scholars. Teaching, unfortunately, is often not perceived as either or is seen at best as "soft" research. Unless an association has an established emphasis on undergraduate education, it is unlikely to perceive outcomes assessment, a largely undergraduate undertaking, as being of particular importance.

Finally, most undergraduate institutions do not have the financial means to institutionalize large extramural projects. Fortunately, PACAT is able to generate sufficient revenues to offset its cost to Austin Peay State University. For other projects, this might not be the case. On the one hand, undergraduate institutions are crucial to the success of innovative methods for outcomes assessment. On the other hand, they cannot afford to sustain innovation and are inherently distrustful of innovations originating at larger, better funded institutions. It would be immensely helpful if FIPSE would lobby the cause of outcomes assessment among other potential funding sources. Obviously the prestige which FIPSE's name carries would serve to lend tremendous credibility to outcomes assessment as a fundable endeavor.

APPENDIX II: PACAT Staff 1988-92

PACAT Staff 1988-92

Director

Anthony Golden

Assistant Director

1988-89	Marcia Wood-Hart
1989-91	Denise Squire

Secretary

1988-89	Marjorie Bigham
1989-	Gayle Shockley

Research Assistant

1988-89	Patricia LeDuc
1989-91	Li-Zung Lin

Graduate Assistant

1988-89	Michelle Crain
1989-90	Terry Corbin
1990-91	Becky Brockel
1991-92	Tracy Stecker

APPENDIX III: Departments Using the ACAT

AGRICULTURE

Austin Peay State University, Clarksville, TN

ART

East Central University, Ada, OK

BIOLOGY

East Central University, Ada, OK
Eastern Oregon State College, LaGrande, OR
Northern Kentucky University, Highland Heights, KY
Tougaloo State College, Tougaloo, MS
University of North Carolina-Charlotte, Charlotte, NC

ENGLISH LITERATURE

Austin Peay State University, Clarksville, TN
Jacksonville State University, Jacksonville, AL
Johnson C. Smith University, Charlotte, NC
LaGrange College, LaGrange, GA
Murray State University, Murray, KY
Southeastern Oklahoma State University, Durant, OK
University of Tennessee- Chattanooga, Chattanooga, TN

MASS COMMUNICATION

Austin Peay State University, Clarksville, TN
East Central University, Ada OK
Johnson C. Smith University, Charlotte, NC
Northwest Missouri State University, Maryville, MO

POLITICAL SCIENCE

Austin Peay State University, Clarksville, TN
Christopher Newport College, Newport News, VA
East Central State University, Ada, OK
Jacksonville State University, Jacksonville, AL
Middle Tennessee State University, Murfreesboro, TN
Salisbury State University, Salisbury, MD
University of Tennessee-Chattanooga, Chattanooga, TN
University of Tenneessee-Martin, Martin, TN

PSYCHOLOGY

Athens State College, Athens, AL
Austin Peay State University, Clarksville, TN

BEST COPY AVAILABLE

Davidson College, Davidson, NC
East Central University, Ada OK
East Tennessee State Univesity, Johnson City, TN
Fisk University, Nashville, TN
Jacksonville State University, Jacksonville, AL
James Madison University, Harrisonburg, VA
Jamestown College, Jamestown, ND
Johnson C. Smith University, Charlotte, NC
LaGrange College, LaGrange, GA
Loyola University, New Orleans, LA
Maryville College, Maryville, TN
Mary Washington College, Fredericksburg, VA
Memphis State University, Memphis, TN
Middle Tennessee State University, Murfreesboro, TN
Morgan State University, Baltimore, MD
Northeast Louisiana State University, Monroe, LA
Northern Kentucky State University, Highland Heights, KY
Northwest Missouri State University, Maryville, MO
Regis University, Denver, CO
Russell Sage College, Troy, NY
Salisbury State University, Salisbury, MD
Slippery Rock University, Slippery Rock, PA
St. Leo (Educational Services), St. Leo, FL
St. Leo (Main Campus), St. Leo, FL
St. Leo (Military Campus), Fort Eustis, VA
Tennessee State University, Nashville, TN
Tuscaloosa College, Tuscaloosa, MS
University of Alaska-Anchorage, Anchorage, AK
University of Kentucky, Lexington, KY
University of Michigan-Dearborn, Dearborn, MI
University of Tennessee-Knoxville, Knoxville, TN
University of Tennessee-Martin, Martin, TN
Western Kentucky State University, Bowling Green, KY
Winthrop University, Rock Hill, SC

SOCIAL WORK

Austin Peay State University, Clarksville, TN
Belmont University, Nashville, TN
Bethany College, Lindsborg, KS
Castleton State College, Castleton, VT
Central Missouri State University, Warrensburg, MO
Christopher Newport College, Newport News, VA
David Lipscomb College, Nashville, TN
Delaware State College, Dover, DE
East Central University, Ada, OK
Eastern Washington University, Cheney, WA
East Tennessee State Univesity, Johnson City, TN
Freed-Hardeman University, Henderson, TN
Jacksonville State University, Jacksonville, AL
Livingstone College, Salisbury, NC
MacMurray College, Jacksonville, IL
Missouri Western State College, St. Joseph, MI
Northeast Louisiana State University, Monroe, LA

Northeastern State University, Tahlequah, OK
Ohio State University-Columbus, Columbus, OH
Radford University, Radford, VA
St. Leo (Main Campus), St. Leo, FL
Southern University, A&M College, Baton Rouge, LA
Tennessee State University, Nashville, TN
University of Missouri-St. Louis, St. Louis, MO
University of North Carolina-Charlotte, Charlotte, NC
University of Tennessee-Martin, Martin, TN
University of Wisconsin-River Falls, River Falls, WI
Upsala College, East Orange, NJ
Virginia State University, Petersburg, VA
Wayne State University, Detroit, MI
William Woods College, Fulton, MO

APPENDIX IV: Content Area Surveys and Curriculum Patterns

Surveys Sent and Received by Discipline

Discipline	Surveys Sent	Received
Art	1,014	340
Biology	1,230	709
Chemistry	1,159	495
Communication	771	368
Criminal Justice	368	162
Geology	409	303
History	1,192	399
Literature in English	335	136
Mathematics	1,216	537
Physics	820	439
Political Science	956	350
Psychology	1,148	655
Public Administration	227	62
Social Work	581	228
Sociology	1,074	516
TOTAL	12,500	5,699 (45.6%)

BEST COPY AVAILABLE

PACAT NATIONAL CURRICULUM SURVEY
ART

CONTENT AREAS INCLUDED IN SURVEY

CONTENT AREA	REQUIRED		OPTION		ELECTIVE		BLANK
	*		*		*		
Art Appreciation	76	18	46	5	75	17	103
Communications Design	56	9	36	9	56	16	158
History of Arts	276	6	20	2	5	1	30
Elementary School Art	77	11	45	0	79	7	121
Secondary School Art	74	10	40	1	68	9	138
Design: Advertising	51	9	48	6	56	24	146
Design: Applied	88	16	16	0	13	13	194
Design: Environmental	3	2	13	3	13	25	281
Design: Fashion	3	0	6	2	13	13	303
Design: Interior	13	1	13	0	37	10	266
Design: Theatre	3	0	12	0	33	7	285
Studio: Ceramics	106	9	123	6	54	4	38
Studio: Crafts	30	6	36	3	60	6	199
Studio: Drawing	272	12	32	0	11	1	12
Studio: Fibers/Textile	30	5	60	3	53	17	172
Studio: Glassworking	1	0	9	0	34	4	292
Studio: Illustration	42	4	47	10	59	18	160
Studio: Jewelry	24	4	64	11	47	20	170
Studio: Metal Smithing	15	5	44	13	26	18	219
Studio: Painting	196	6	92	0	30	3	13
Studio: Papermaking	10	2	26	11	61	43	187
Studio: Photography - Film	86	5	101	3	55	6	84
Studio: Photography - Video	12	2	46	2	39	12	227
Studio: Printmaking	140	8	114	3	45	5	25
Studio: Sculpture	150	12	103	5	40	3	27
Studio: Water-Color	55	3	74	14	79	37	78

"WRITE-IN" CONTENT AREAS

(Write-in content area names are based upon nomenclature provided by respondents.)

CONTENT AREA	REQUIRED		OPTION		ELECTIVE	
	*		*		*	
Calligraphy	0	0	9	0	0	0
Color Theory/Design	8	1	2	0	0	0
Studio: Foundations/Fundamentals	5	0	0	0	0	0
Design - Elements	9	0	1	0	0	0
Design - 2D	6	0	0	0	0	0
Design - 3D	6	0	0	0	0	0
Computer Graphics	2	0	6	1	2	0
Other	6	0	4	0	0	0

* Taught as a separate course

(Tables based on 340 returns out of 1,014 surveys sent.)

PACAT NATIONAL CURRICULUM SURVEY
BIOLOGY

CONTENT AREAS INCLUDED IN SURVEY

CONTENT AREA	REQUIRED		OPTION		ELECTIVE		BLANK
	*		*		*		
Aquatic Biology	14	28	91	34	185	143	214
Biochemistry	143	29	148	15	266	40	68
Botany: Field	49	57	127	50	155	102	169
Botany: Non-Vascular	72	135	80	67	74	119	162
Botany: Vascular	119	126	115	59	99	80	111
Cellular Biology	295	39	164	15	108	42	46
Ecology (incl. Field Ecology)	317	18	194	3	129	9	39
Embryology	73	18	199	30	256	53	80
Entomology	6	20	86	25	176	89	307
Evolution (incl. Molecular)	94	87	123	31	170	117	87
Genetics	523	15	100	1	49	3	18
Histology	14	9	117	21	275	73	200
Human Anatomy & Physiology	82	15	127	11	292	40	142
Microbiology: Bacteriology	183	23	159	46	175	70	53
Microbiology: Immunology	51	35	130	34	250	108	101
Microbiology: Microbial Physiology and Ecology	28	47	55	65	81	209	224
Microbiology: Mycology	16	39	49	61	104	168	272
Microbiology: Virology	22	42	46	61	127	188	223
Molecular Biology	92	92	94	41	134	146	110
Physiology: Animal	136	40	216	18	160	71	68
Physiology: Cell	79	85	107	61	81	150	146
Physiology: Plant	50	49	170	31	128	90	191
Zoology: Comparative Vertebrate Anatomy	81	14	168	25	225	61	135
Zoology: Field Zoology	22	28	68	49	118	162	262
Zoology: Invertebrate Zoology	110	69	162	15	161	62	130
Zoology: Vertebrate Zoology	96	71	113	35	126	111	157

"WRITE-IN" CONTENT AREAS

(Write-in content area names are based upon nomenclature provided by respondents.)

CONTENT AREA	REQUIRED		OPTION		ELECTIVE	
	*		*		*	
Animal Behavior/Behavioral Biology/ Ethology	1	0	10	0	27	0
Biometrics/Biostatistics/Research Methods	21	2	4	1	10	0
Developmental Biology	3	0	5	0	4	0
Parasitology	1	0	8	0	24	0
Electron Microscopy	0	0	6	0	10	0
Endocrinology	0	0	7	0	14	2
Environmental Biology	2	0	4	0	9	0
Marine Biology	3	0	3	2	15	2
Neurobiology/Neuroscience/ Neuroanatomy/Neurophysiology	1	0	6	0	18	1
Taxonomy (Animal/Plant)	3	0	4	0	2	1
Other	24	0	27	1	69	4

* Taught as a separate course

(Tables based on 709 returns out of 1,230 surveys sent.)

PACAT NATIONAL CURRICULUM SURVEY
CRIMINAL JUSTICE

CONTENT AREAS INCLUDED IN SURVEY

CONTENT AREA	REQUIRED		OPTION		ELECTIVE		BLANK
	*		*		*		
Community Service Systems	6	6	4	5	12	22	77
Comparative Criminal Justice	4	8	16	4	28	15	57
Correction Processes	69	5	22	2	15	1	18
Crime Prevention	5	12	7	12	16	24	56
Criminal Investigation	25	1	25	4	27	10	40
Criminal Justice Report Writing	8	8	4	5	2	16	89
Criminal Justice System	64	14	3	0	4	18	29
Criminal Law	85	3	12	2	10	0	20
Criminology	79	10	11	1	9	1	21
Crisis Intervention	4	4	3	4	16	26	75
Deviant Behavior	28	10	19	3	23	19	30
Ethics	16	13	15	2	8	28	50
History of Justice	10	39	7	3	7	24	42
Information Systems in Criminal Justice	5	11	9	7	3	15	82
Juvenile Justice	45	7	31	4	30	0	15
Law Enforcement	44	17	15	7	14	8	27
Legal Aspects	29	15	12	2	12	19	43
Police Administration	29	12	18	13	24	9	27
Police Community Relations	13	12	14	9	21	23	40
Probation and Parole	14	23	26	5	30	10	24
Research Methods -Criminalistics	66	8	7	2	9	7	33
Security Management	6	2	15	2	30	5	72

"WRITE-IN" CONTENT AREAS

(Write-in content area names are based upon nomenclature provided by respondents.)

CONTENT AREA	REQUIRED		OPTION		ELECTIVE	
	*		*		*	
Constitutional Law	3	0	2	0	2	0
Criminal Justice Management	2	1	3	0	0	0
Gender and Minority Issues	2	0	2	0	4	1
Research Methods - Other	5	0	2	0	1	0
Substance Abuse	1	0	2	0	3	0
Victimology	1	0	1	0	4	0
Violence	0	1	1	0	4	0
White Collar and Organized Crime	0	0	3	0	7	1
Other	7	1	8	0	8	0

* Taught as a separate course

(Tables based on 162 returns out of 368 surveys sent.)

PACAT NATIONAL CURRICULUM SURVEY
ENGLISH LITERATURE

CONTENT AREAS INCLUDED IN SURVEY

CONTENT AREA	REQUIRED		OPTION		ELECTIVE		BLANK
	*		*		*		
Adolescent Literature	8	0	11	4	26	11	75
American Colonial	9	7	46	26	12	17	18
American Modern (1860's to present)	17	4	54	14	20	3	23
American Renaissance	15	3	57	24	18	8	10
Augustan Period	15	8	67	13	16	8	8
Black Writers in Modern America	1	3	24	10	47	23	27
Biblical Literature	3	1	19	5	40	12	55
British Medieval	20	10	73	9	14	4	5
British Modern	16	6	68	10	23	8	4
British Renaissance	25	8	71	9	14	4	4
British Romantic Period	14	7	77	8	22	5	2
Chaucer	9	3	77	11	23	8	4
Genre: Cinema	0	0	13	2	55	6	59
Genre: Drama	9	1	37	4	51	15	18
Genre: Fiction	6	1	35	12	43	16	22
Genre: Novel	7	3	42	9	42	15	17
Genre: Poetry	18	2	37	5	42	14	17
Genre: Satire	0	1	13	8	21	41	51
Genre: Short Story	3	1	26	5	40	29	31
Linguistics: Grammar	20	7	25	3	19	20	41
Linguistics: History of the Language	16	6	37	7	23	15	31
Linguistics: Structure	6	10	17	14	7	26	55
Linguistics: Usage	6	8	6	13	2	32	68
Literature for Children	5	2	10	2	46	8	62
Milton	4	5	68	15	18	17	8
Shakespeare	57	1	56	0	20	0	1
Southern Literature	0	2	18	8	30	21	56
Victorian Literature	13	7	72	10	22	6	5
Women in Literature	1	2	27	10	65	11	19
World: Greek	3	7	9	20	10	31	55
World: Roman	1	7	7	20	12	32	56

"WRITE-IN" CONTENT AREAS

(Write-in content area names are based upon nomenclature provided by respondents.)

CONTENT AREA	REQUIRED		OPTION		ELECTIVE	
	*		*		*	
Literary Criticism	2	0	1	0	3	0
Other	5	0	4	0	8	0

* Taught as a separate course

(Tables based on 136 returns out of 335 surveys sent.)

PACAT NATIONAL CURRICULUM SURVEY
GEOLOGY

CONTENT AREAS INCLUDED IN SURVEY

CONTENT AREA	REQUIRED		OPTION		ELECTIVE		BLANK
	*		*		*		
Economic Geology	12	7	37	2	128	29	55
Engineering Geology	7	4	16	5	61	29	148
Environment/Problems	15	18	27	7	131	31	41
Field Methods	147	33	16	4	34	8	28
Geochemistry	29	17	57	4	99	14	50
Geologic Mapping	88	66	8	14	18	27	49
Geomorphology	83	19	52	1	74	6	35
Geophysics	50	10	59	2	72	18	59
Geotectonics	18	52	25	7	56	47	65
Historical Geology	206	20	10	0	15	5	14
Hydrology	22	4	55	2	119	11	57
Igneous & Metamorphic Petrology	127	34	24	1	40	17	27
Invertebrate Paleontology	140	10	44	0	47	9	20
Mineral & Fuel Deposit Characteristics	4	14	13	11	53	70	105
Mineralogy	241	6	6	0	10	0	7
Oceanography	11	6	26	2	133	11	81
Optical Mineralogy	99	53	22	5	56	15	20
Petrology/Petrography	166	24	12	2	20	8	38
Physical Geology	223	15	5	1	6	1	19
Planetary Science	4	7	9	1	54	30	165
Probability and Statistics	32	16	28	4	43	24	123
Sedimentation	120	57	28	8	31	10	16
Stratigraphy	133	58	18	9	30	11	11
Structural Geology	225	4	14	9	0	2	16
Vertebrate Paleontology	1	19	11	3	29	43	164
Volcanology	2	35	4	5	38	64	122

"WRITE-IN" CONTENT AREAS

(Write-in content area names are based upon nomenclature provided by respondents.)

CONTENT AREA	REQUIRED		OPTION		ELECTIVE	
	*		*		*	
Computer Applications	5	0	2	0	3	0
Glacial Geology	0	0	3	0	6	0
Marine Geology	1	0	1	0	2	0
Paleontology	0	1	1	0	4	0
Petroleum Geology	1	0	1	0	4	0
Photo Geology	1	0	2	0	7	0
Regional Geology	3	0	1	0	11	0
Remote Sensing	1	0	1	0	3	0
Seismology	1	0	1	0	2	0
X-Ray Crystallography	2	0	2	0	4	0
Other	6	0	6	0	15	0

* Taught as a separate course

(Tables based on 303 returns out of 409 surveys sent.

PACAT NATIONAL CURRICULUM SURVEY
HISTORY

CONTENT AREAS INCLUDED IN SURVEY

CONTENT AREA	REQUIRED		OPTION		ELECTIVE		BLANK
	*		*		*		
U.S.: Colonial to 1763	25	104	24	106	36	46	58
U.S.: 1763 to 1820	26	99	34	103	45	45	47
U.S.: 1820 to 1890	23	107	27	115	42	48	37
U.S.: 1890 to 1940	27	104	31	98	46	39	54
U.S.: 1940 to Present	18	120	27	117	28	48	41
U.S.: American Indian/West	47	97	33	57	39	21	105
U.S.: Black History	47	104	30	66	36	23	93
U.S.: Constitutional	55	86	29	57	38	25	109
U.S.: Economic/Urban	53	85	30	59	40	16	116
U.S.: Military/Diplomatic	25	129	24	97	18	34	72
U.S.: Social/Intellectual/Cultural	36	96	33	85	31	29	89
U.S.: Southern	48	79	26	56	30	19	141
U.S.: Women	32	121	28	75	28	14	101
English: Prior to 1715	29	128	22	103	10	19	88
English: 1715 to Present	28	130	25	103	12	19	82
English: British Empire	64	50	34	38	24	8	181
English: British Constitutional	72	31	33	22	22	5	214
European: Ancient	12	108	10	111	31	44	83
European: Medieval	16	120	8	121	24	48	62
European: Renaissance and Reformation	21	127	11	124	23	41	52
European: Early Modern	28	100	20	104	34	58	55
European: Modern To Present	15	106	10	133	18	77	40
European: Church	67	59	31	36	21	13	172
European: Economic/Urban	77	33	35	21	38	7	188
European: French Revolution and Napoleon	42	103	35	88	34	31	66
European: Imperialism	91	23	48	22	51	8	156
European: Legal	61	6	20	6	16	2	288
European: Military/Diplomatic	62	51	38	32	42	5	169
European: Social/Intellectual /Cultural	63	65	34	53	46	16	122
European: Women	58	58	29	31	29	5	189
African	19	72	12	85	12	15	184
Chinese	27	97	24	118	18	12	103
Japanese	36	82	32	83	18	11	137
Middle Eastern	16	91	12	82	19	8	171
Russian	7	150	6	137	12	25	62
Historiography	21	13	2	16	10	68	269
Research Methods	13	11	3	15	9	74	274

"WRITE-IN" CONTENT AREAS

(Write-in content area names are based upon nomenclature provided by respondents.)

CONTENT AREA	REQUIRED		OPTION		ELECTIVE	
	*		*		*	
Latin American	0	23	0	35	0	2
U.S.: State/Regional History	0	17	0	9	0	1
Other	0	69	3	57	0	14

* Taught as a separate course

(Tables based on 399 returns out of 1,192 surveys sent.)

PACAT NATIONAL CURRICULUM SURVEY
MATHEMATICS

CONTENT AREAS INCLUDED IN SURVEY

CONTENT AREA	REQUIRED *	REQUIRED	OPTION *	OPTION	ELECTIVE *	ELECTIVE	BLANK
3-Dimensional Vector Calculus	208	175	17	14	22	30	71
Abstract Algebra	299	2	118	1	57	2	58
Complex Analysis	27	7	136	3	180	21	163
Differential Calculus	296	162	1	1	4	10	63
Differential Equations	177	13	131	5	147	5	59
Geometry	78	2	149	3	197	11	97
Integral Calculus	293	178	2	1	1	3	59
Linear Algebra	412	14	40	2	14	0	55
Mathematical Models	34	26	90	17	109	63	198
Numerical Analysis	49	4	173	1	193	13	104
Partial Differential Equations	6	20	48	28	101	80	254
Probability	113	71	112	44	97	46	54
Real Analysis	210	7	106	3	75	16	120
Statistics	129	55	132	30	99	26	66
Topology	13	7	92	6	158	26	235

"WRITE-IN" CONTENT AREAS

(Write-in content area names are based upon nomenclature provided by respondents.)

CONTENT AREA	REQUIRED *	REQUIRED	OPTION *	OPTION	ELECTIVE *	ELECTIVE
Combinatorics	2	0	11	0	16	0
Computer Programming	12	0	5	0	5	0
Discrete Mathematics	25	6	12	0	10	1
History of Mathematics	13	4	11	0	12	1
Logic	3	6	4	0	5	0
Number Theory	8	4	17	0	16	1
Operations Research	3	0	10	0	11	1
Other	24	7	51	1	29	0

* Taught as a separate course

(Tables based on 537 returns out of 1,216 surveys sent.)

PACAT NATIONAL CURRICULUM SURVEY
MASS COMMUNICATION
CONTENT AREAS INCLUDED IN SURVEY

CONTENT AREA	REQUIRED *		OPTION *		ELECTIVE *		BLANK
Advertising	43	15	39	14	86	13	122
Business & Professional Speaking	32	13	35	6	72	22	152
Research Methods	96	24	29	8	44	24	107
Debate/Discussion	44	8	46	5	75	19	135
Editorial and Feature Writing	35	12	51	11	85	23	115
Group Leadership Techniques	37	28	37	11	53	28	138
History of Cinema	16	39	17	15	75	27	143
History of Radio	26	74	19	29	26	55	103
History of Television	35	72	21	29	25	52	98
History of Theater	26	6	20	10	55	8	207
Interpersonal Communications	104	18	45	5	47	10	103
Laws and Ethics	127	24	28	5	45	25	78
Mass Communication	137	11	36	6	27	14	101
Mass Media and Society	115	33	42	7	50	12	73
Mass Media Writing	85	16	47	12	57	13	102
News Writing	111	14	51	9	63	7	77
Newspaper Editing	59	11	38	8	71	18	127
Persuasion	79	16	49	9	55	13	111
Production: Cinema	13	5	14	3	37	12	248
Production: Electronic Media	47	16	31	8	57	15	158
Production : Photography	48	2	39	0	86	8	149
Production: Radio	57	7	52	4	87	7	118
Production: Television	78	5	58	3	99	3	86
Production : Theater	24	3	22	5	66	2	210
Public Relations	56	11	55	3	107	18	82
Public Speaking	154	9	44	1	36	5	83
Reporting	72	11	39	12	49	15	134
Theories in Communication	124	40	34	9	22	16	87

"WRITE-IN" CONTENT AREAS

(Write-in content area names are based upon nomenclature provided by respondents.)

CONTENT AREA	REQUIRED *		OPTION *		ELECTIVE *	
Broadcast Announcing	1	0	3	0	0	0
Creative and Technical Writing	0	0	6	0	3	0
History: Journalism	0	1	2	0	0	0
History: Mass Media	3	0	0	0	0	0
Intercultural/International Communications	3	0	4	0	10	0
Media Criticism	4	0	2	0	1	0
Media Management/Marketing	6	1	4	0	2	0
Organizational Communication	9	0	8	0	5	2
Print Media Production	0	0	2	1	3	0
Visual Design/Graphics	5	0	3	0	0	1
Voice & Diction/Oral Interpretation	5	0	4	0	3	0
Other	11	1	7	1	9	0

* Taught as a separate course

(Tables based on 368 returns out of 771 surveys sent.)

PACAT NATIONAL CURRICULUM SURVEY
PHYSICS

CONTENT AREAS INCLUDED IN SURVEY

CONTENT AREA	REQUIRED		OPTION		ELECTIVE		BLANK
	*		*		*		
Astronomy	11	4	42	0	219	14	149
Atomic Physics and Spectroscopy	120	185	19	33	18	35	29
Condensed Matter Physics	29	50	78	17	95	45	125
Electricity	125	185	25	32	11	28	33
Fluids	12	60	15	13	27	50	262
Heat and Thermodynamics	180	73	81	22	34	22	27
Magnetism	125	224	15	39	4	27	5
Mechanics	361	15	45	1	13	1	3
Nuclear Physics	60	117	68	33	51	54	56
Optics: Ray	66	133	42	70	34	52	42
Optics: Wave Motion	98	125	50	60	38	43	25
Particle Physics	11	82	24	50	39	69	164
Physical Electronics	123	91	66	29	47	27	56
Quantum Mechanics	243	46	84	9	38	7	12
Relativity	34	227	18	41	34	58	27
Statistical/Mathematical Physics	84	102	44	49	39	47	74

"WRITE-IN" CONTENT AREAS

(Write-in content area names are based upon nomenclature provided by respondents.)

CONTENT AREA	REQUIRED		OPTION		ELECTIVE	
	*		*		*	
Digital Electronics	3	0	5	0	3	1
Analog Electronics	2	0	1	0	0	0
Computer Applications	3	0	3	0	2	1
Astrophysics	2	0	7	0	2	0
Plasma Physics	1	0	5	0	0	0
Research Methods/Research	8	0	0	0	0	0
Biophysics	0	0	3	0	3	0
Acoustics	1	0	2	0	2	0
Electronic Circuits	2	0	3	0	0	0
Others	9	1	7	0	3	0

* Taught as a separate course

(Tables based on 439 returns out of 820 surveys sent.)

BEST COPY AVAILABLE

PACAT NATIONAL CURRICULUM SURVEY
POLITICAL SCIENCE

CONTENT AREA	REQUIRED		OPTION		ELECTIVE		BLANK
	*		*		*		
AMERICAN STUDIES							
American Presidency	15	28	125	15	126	20	21
Constitutional Law	31	4	133	8	154	2	18
Criminal Justice	2	8	21	12	73	63	171
Federal Government and Public Policy	73	19	78	14	64	43	59
Minority Politics	5	8	34	17	58	79	149
Political Parties - Processes and Elections	18	11	127	15	140	18	21
Special Interest Groups	4	21	40	35	55	99	96
Public Administration/Public Bureaucracy	32	4	112	6	122	19	55
Public Law/Judicial Processes	14	11	93	19	102	44	67
State/City/Local Government and Policies	46	1	102	9	126	18	48
The Congress	9	29	111	21	111	26	43
INTERNATIONAL STUDIES							
African Politics	3	5	56	13	75	48	150
American Foreign Policy	18	4	133	8	143	14	30
Central American Politics	0	6	32	30	52	86	144
Comparative Governments	57	14	89	18	58	31	83
Comparative Politics	68	12	65	22	53	41	89
Far Eastern Politics	2	3	58	22	75	55	135
Global Issues	25	9	42	23	34	84	133
International Law	10	9	73	16	104	42	96
Middle Eastern Politics	0	3	70	8	93	49	127
South American Politics	9	3	53	21	72	62	139
Soviet Politics	1	11	95	23	117	45	58
Third World Politics	4	10	77	23	75	65	96
Western European Politics	10	10	109	19	90	47	65
METHOD							
Criminal Justice Methods	2	1	5	5	17	53	267
Policy Analysis	16	7	52	18	50	59	148
Political Analysis	30	21	31	15	22	54	177
Quantitative Methods	66	29	37	13	43	43	119
Research Methods	99	23	39	15	47	27	100
NORMATIVE THEORY							
American Political Thought	20	10	99	11	111	29	70
Marxist Theory	1	23	40	38	48	94	106
Theories of American Politics	8	20	16	29	24	85	168
Theories of Political Decision Making	2	10	13	24	14	88	199
Theories of Political Organization	5	8	11	25	10	83	208
Theories of World Politics (Contemporary)	14	16	45	29	39	72	135
Theories of World Politics (Historical)	6	11	16	34	15	79	189
Western Political Theory (Contemporary)	36	8	96	19	68	34	89
Western Political Theory (Historical)	64	5	128	11	75	20	47

"WRITE-IN" CONTENT AREAS

(Write-in content area names are based upon nomenclature provided by respondents.)

CONTENT AREA	REQUIRED		OPTION		ELECTIVE	
	*		*		*	
International Organizations	0	0	5	0	3	0
International Political Economy	0	0	4	0	3	0
International Relations	4	0	7	0	1	0
Mass Media/Public Opinion	0	0	6	0	7	0
U.S. Military, Defense, and National Security	0	0	5	0	7	0
Women in Politics	0	0	4	1	7	0
Other	2	0	16	0	35	0

* Taught as a separate course

(Tables based on 350 returns out of 956 surveys sent.)

PACAT NATIONAL CURRICULUM SURVEY
PSYCHOLOGY

CONTENT AREAS INCLUDED IN SURVEY

CONTENT AREA	REQUIRED *		OPTION *		ELECTIVE *		BLANK
Abnormal	110	1	301	1	189	1	11
Animal Learning/Motivation	55	61	204	42	66	69	117
Clinical/Counseling	35	10	147	13	235	61	113
Community	4	11	33	11	57	88	410
Comparative	5	20	84	25	64	80	336
Developmental	139	3	278	1	163	6	24
Educational	18	4	50	2	172	29	339
Experimental Design	452	57	32	3	30	11	29
Forensic	3	3	12	8	48	46	494
Gender	5	13	52	24	198	102	220
History and Systems	216	18	133	6	151	20	70
Human Learning/Cognition	109	31	281	21	99	28	45
Industrial	11	4	126	6	247	28	192
Minority	4	9	20	18	68	82	413
Personality	125	7	295	3	152	3	29
Physiological	107	10	309	3	117	14	54
Psycholinguistics	4	12	52	23	68	82	373
Sensation and Perception	22	38	251	20	96	54	133
Social	100	2	304	5	172	0	31
Statistics	502	36	28	1	12	4	31
Testing and Measurement	86	6	196	10	205	31	80

"WRITE-IN" CONTENT AREAS

(Write-in content area names are based upon nomenclature provided by respondents.)

CONTENT AREA	REQUIRED *		OPTION *		ELECTIVE *	
Adjustment	2	0	5	0	22	0
Applied	1	0	2	0	8	0
Behavior Modification	0	0	12	0	21	0
Computer Analysis/Use/Application	4	0	5	0	7	0
Cross/Multi Cultural	0	0	5	0	8	0
Emotion,Stress and Coping	0	0	3	0	10	1
Environmental	1	0	5	0	14	0
Ethics/Professional Conduct	4	0	1	1	3	0
Exceptionalities	2	0	11	0	21	1
Group Dynamics	4	0	12	0	18	0
Health/Sports	0	0	12	0	16	1
Human Sexuality	2	0	9	0	27	0
Humanistic	0	0	4	0	9	0
Psychopharmacology	2	0	12	0	24	0
Religion	1	0	4	0	13	0
Other	4	1	29	0	53	0

* Taught as a separate course

(Tables based on 655 returns out of 1,148 surveys sent.)

PACAT NATIONAL CURRICULUM SURVEY
PUBLIC ADMINISTRATION

CONTENT AREAS INCLUDED IN SURVEY

CONTENT AREA	REQUIRED		OPTION		ELECTIVE		BLANK
	*		*		*		
Economic Aspects	32	2	7	7	4	6	4
Ethics	8	18	2	7	8	12	7
Governmental Relations	16	15	6	2	5	7	11
Human Resources	21	8	12	3	7	4	7
International & Regional Development	1	1	4	4	8	15	29
International Organizations	1	0	3	4	14	7	33
Judicial Processes	8	5	11	3	12	9	14
Legal Aspects	10	8	13	5	8	9	9
Legislative Processes	7	17	11	1	10	6	10
Local Government	19	11	14	4	8	2	4
National Government	34	11	4	0	5	3	5
Organizational Dynamics	20	11	7	5	5	8	6
Planning	5	8	11	5	7	11	15
Public Administration	42	5	8	0	3	0	4
Public Policy Analysis	26	2	13	4	4	3	10
Research Methods	34	4	5	4	3	0	12
State Government	16	14	12	6	9	1	4
Statistics	36	7	3	1	3	2	10
Urban Affairs	6	2	15	4	15	6	14

"WRITE-IN" CONTENT AREAS

CONTENT AREA	REQUIRED		OPTION		ELECTIVE	
	*		*		*	
Budgets/Accounting & Finance	8	0	0	0	0	0
Computer Applications	3	0	0	1	0	0
Management	1	0	1	0	0	0
Other	3	0	0	0	0	0

(* Taught as a separate course)

PACAT NATIONAL CURRICULUM SURVEY
SOCIAL WORK

CONTENT AREAS INCLUDED IN SURVEY

CONTENT AREA	REQUIRED *		OPTION *		ELECTIVE *		BLANK
Afro-American Family	21	92	4	10	4	38	31
Child and Adolescent Behavior	44	91	11	2	11	15	26
Current Issues in Social Work	32	92	0	6	10	29	31
Family Planning and Population Policy	8	54	6	10	8	35	79
Health Care Delivery	9	68	14	7	26	30	46
Human Sexuality	21	76	4	4	41	25	29
Legal Aspects of Social Work	18	62	7	8	16	33	56
Methods of Intervention	132	33	2	0	4	6	23
Policy-Program Analysis	90	61	1	4	5	11	28
Quantitative Methods/ Statistics	114	24	10	1	22	5	24
Research Methods	159	13	1	2	9	2	14
Social Services for the Abused and Neglected Child	21	62	17	10	34	23	33
Social Services for the Child and Family	30	64	18	9	29	23	27
Social Services for Health and Rehabilitation	7	72	7	14	22	32	46
Social Services for Mental Health and Retardation	7	77	15	9	13	37	42
(§)Human Behavior in the Social Environment	86	74	1	3	1	10	25
Social Services for the Aged	21	59	22	7	37	26	28
Social Welfare Policy and Service	141	27	3	1	6	4	18
Social Work Practice Methods	150	22	3	1	5	2	17
Social Work Skills	125	42	1	1	3	4	24

(§) This area was inadvertently listed as "Social Environment" in the surveys. The incorrect listing may account for some departments indicating that they do not require it when in fact they do.

"WRITE-IN" CONTENT AREAS

(Write-in content area names are based upon nomenclature provided by respondents.)

CONTENT AREA	REQUIRED *		OPTION *		ELECTIVE *	
Minority Issues	3	1	2	1	1	0
Ethics	2	3	0	0	1	0
Community Organization/Analysis	3	0	0	0	0	0
Other	4	1	6	0	10	0

* Taught as a separate course

(Tables based on 228 returns out of 581 surveys sent.)

PACAT NATIONAL CURRICULUM SURVEY
SOCIOLOGY

CONTENT AREAS INCLUDED IN SURVEY

CONTENT AREA	REQUIRED		OPTION		ELECTIVE		BLANK
	*		*		*		
Behavior in Organization	23	7	63	13	176	135	99
Criminology	34	1	108	5	293	31	44
Deviance/Corrections	24	0	93	10	268	72	49
Juvenile Delinquency	18	3	66	16	220	110	83
Marriage and Family	32	0	110	2	338	10	24
Medical Sociology	4	0	51	1	245	35	180
Race and Ethnic Relations	38	4	109	7	297	34	27
Research Methods	467	6	11	1	21	4	6
Social Anthropology	80	4	46	0	165	48	173
Social Change	18	7	49	14	170	147	111
Social Problems	94	4	89	1	244	43	41
Social Stratification	42	11	105	9	212	91	46
Social Theory/Thought	447	6	8	2	30	5	18
Society and the Individual	56	12	64	9	141	111	123
Sociology of Aged and Aging	9	1	69	2	257	62	116
Sociology of Sex Roles	4	5	50	10	250	108	89
Sociology of Work	4	2	45	6	173	118	168
Statistics	350	19	25	2	46	28	46
Urban Sociology	22	2	89	3	259	65	76

"WRITE-IN" CONTENT AREAS

(Write-in content area names are based upon nomenclature provided by respondents.)

CONTENT AREA	REQUIRED		OPTION		ELECTIVE	
	*		*		*	
Applied Sociology	0	0	4	1	13	0
Cross Cultural Sociology/Non U.S. Systems	3	0	5	0	17	0
Culture/Social Institutions (U.S.)	3	0	6	0	10	0
Demography	4	0	4	0	13	0
Political Sociology	0	0	6	0	21	0
Population Issues	1	0	8	0	23	0
Social Psychology	12	0	9	0	9	0
Sociology of Communication/Mass Media	0	0	6	0	10	0
Sociology of Education	0	0	5	0	16	0
Sociology of Religion	0	0	18	0	36	0
Sociology of the Law	0	0	6	0	21	0
Other	12	0	53	0	83	2

* Taught as a separate course

(Tables based on 516 returns out of 1,074 surveys sent.)

BEST COPY AVAILABLE

PACAT ART CURRICULUM PATTERN A

(Of the 297 classifiable surveys returned, 174 fell within this curriculum.)

COMMON CONTENT AREAS

Drawing
History of Arts
Painting

Optional Content Areas (Select 7)

Advertising
Art Appreciation
Ceramics
Crafts
Elementary School Art
Photography - Film
Printmaking
Sculpture
Secondary School Art
Water-Color

PACAT ART CURRICULUM PATTERN B

(Of the 297 classifiable surveys returned, 63 fell within this curriculum.)

COMMON CONTENT AREAS

Drawing
History of Arts
Painting

Optional Content Areas (Select 4)

Ceramics
Communications Design
Photography - Film
Printmaking
Sculpture
Water-Color

PACAT ART CURRICULUM PATTERN C

(Of the 297 classifiable surveys returned, 12 fell within this curriculum.)

COMMON CONTENT AREAS

Drawing
History of Arts
Sculpture

Optional Content Areas (Select 2)

Art Appreciation
Ceramics
Water-Color

PACAT ART CURRICULUM PATTERN D

(Of the 297 classifiable surveys returned, 17 fell within this curriculum.)

COMMON CONTENT AREAS

Drawing
Painting
Printmaking

Optional Content Areas (Select 2)

Applied
Art Appreciation
Communications Design
Sculpture

PACAT ART CURRICULUM PATTERN E

(Of the 297 classifiable surveys returned, 31 fell within this curriculum.)

COMMON CONTENT AREAS

Drawing
History of Arts

Optional Content Areas (Select 2)

Painting
Printmaking
Sculpture

PACAT BIOLOGY CURRICULUM PATTERN A

(Of the **591** classifiable surveys returned, **217** fell within this curriculum.)

COMMON CONTENT AREAS

Cellular Biology
Ecology (including Field Ecology)
Genetics
Vascular Botany

Optional Content Areas (Select 6)

Animal Physiology
Bacteriology
Biochemistry
Cell Physiology
Embryology
Evolution (including Molecular)
Invertebrate & Vertebrate Zoology
Molecular Biology
Non-Vascular Botany

PACAT BIOLOGY CURRICULUM PATTERN B

(Of the **591** classifiable surveys returned, **150** fell within this curriculum.)

COMMON CONTENT AREAS

Cellular Biology
Ecology (including Field Ecology)
Genetics

Optional Content Areas (Select 2)

Animal & Plant Physiology
Bacteriology
Embryology

PACAT BIOLOGY CURRICULUM PATTERN C

(Of the **591** classifiable surveys returned, **91** fell within this curriculum.)
(A * indicates areas which were added to the original pattern at the request of participating departments.)

COMMON CONTENT AREAS

Ecology (including Field Ecology)
Genetics

Optional Content Areas (Select 5)

Animal Physiology (*)
Bacteriology
Biochemistry
Cellular Biology (*)
Embryology
Evolution (including Molecular)
Human Anatomy & Physiology
Immunology
Invertebrate Zoology
Molecular Biology
Plant Physiology (*)
Vascular and Non-vascular Botany (*)
Vertebrate and Invertebrate Zoology (*)

PACAT BIOLOGY CURRICULUM PATTERN D

(Of the **591** classifiable surveys returned, **42** fell within this curriculum.)

COMMON CONTENT AREAS

Cellular Biology
Genetics

Optional Content Areas (Select 4)

Bacteriology
Biochemistry
Cell Physiology
Immunology
Molecular Biology
Virology

PACAT BIOLOGY CURRICULUM PATTERN E

(Of the 591 classifiable surveys returned, 24 fell within this curriculum.)

COMMON CONTENT AREAS

Cellular Biology
Genetics

Optional Content Areas (Select 3)

Animal Physiology
Bacteriology
Biometrics/Statistics/Research Methods and Design
Ecology (including Field Ecology)
Human Anatomy & Physiology

PACAT BIOLOGY CURRICULUM PATTERN F

(Of the 591 classifiable surveys returned, 25 fell within this curriculum.)

COMMON CONTENT AREAS

Genetics
Vascular Botany

Optional Content Areas (Select 3)

Biochemistry
Comparative Vertebrate Anatomy
Field Botany
Invertebrate & Vertebrate Zoology
Non-Vascular Botany

PACAT BIOLOGY CURRICULUM PATTERN G

(Of the 591 classifiable surveys returned, 24 fell within this curriculum.)

COMMON CONTENT AREAS

Bacteriology
Genetics

Optional Content Areas (Select 2)

Animal Physiology
Biochemistry
Embryology
Immunology

PACAT BIOLOGY CURRICULUM PATTERN H

(Of the 591 classifiable surveys returned, 18 fell within this curriculum.)

COMMON CONTENT AREAS

Ecology (including Field Ecology)
Genetics

Optional Content Areas (Select 2)

Animal Physiology
Non-Vascular Botany
Vascular Botany

PACAT CRIMINAL JUSTICE CURRICULUM PATTERN A

(Of the **96** classifiable surveys returned, **52** fell within this curriculum.)

COMMON CONTENT AREAS

Correction Processes
Criminal Law
Criminology

Optional Content Areas (Select 7)

Criminal Justice Systems
Deviant Behavior
History of Justice
Juvenile Justice
Law Enforcement
Legal Aspects
Police Administration
Police Community Relations
Probation and Parole
Research Methods - Criminalistics

PACAT CRIMINAL JUSTICE CURRICULUM PATTERN B

(Of the **96** classifiable surveys returned, **19** fell within this curriculum.)

COMMON CONTENT AREAS

Correction Processes
Criminal Justice Systems
Law Enforcement

Optional Content Areas (Select 3)

Criminology
Deviant Behavior
Juvenile Justice
Police Administration
Research Methods - Criminalistics

PACAT CRIMINAL JUSTICE CURRICULUM PATTERN C

(Of the **96** classifiable surveys returned, **25** fell within this curriculum.)

COMMON CONTENT AREAS

Criminal Law
Criminology

Optional Content Areas (Select 2)

Correction Processes
Criminal Investigation
Juvenile Justice

NOTE: These are **preliminary** patterns. Although comments are always appreciated, we particularly would like to receive evaluations and suggested revisions prior to January 30, 1993. After this date, we will be actively seeking to build a national consortium of departments for the purpose of outcomes assessment using the patterns above. Please send comments and suggestions to:

PACAT
Austin Peay State University
P.O. Box 4568
Clarksville, TN 37044

PACAT LITERATURE IN ENGLISH CURRICULUM PATTERN A

(Of the 93 classifiable surveys returned, **88** fell within this curriculum.)

COMMON CONTENT AREAS	Optional Content Areas (Select 8)
Renaissance	American Colonial
Shakespeare	American Modern (1860's to present)
	American Renaissance
	Augustan Period
	British Medieval
	British Modern
	British Romantic Period
	Chaucer
	Genre: Drama
	Genre: Poetry
	Victorian Literature

PACAT LITERATURE IN ENGLISH CURRICULUM PATTERN B

(Of the 93 classifiable surveys returned, 5 fell within this curriculum.)

COMMON CONTENT AREAS	Optional Content Areas (Select 4)
British Renaissance	American Colonial
Shakespeare	American Renaissance
	Biblical Literature
	British Medieval
	Chaucer

PACAT LITERATURE IN ENGLISH CURRICULUM PATTERN C

(This pattern serves as the basis of the **Area Concentration Achievement Test** developed independently in 1989 and does not conform to the same structural divisions as those above.)

CONTENT AREAS

American to 1865
American Modern (1860's to present)
British Medieval
British Renaissance
British Romantic Period
British Victorian Literature
Shakespeare
Linguistics (Grammar, History, Structure, Usage)
Restoration/18th Century/PreRomantic

PACAT GEOLOGY CURRICULUM PATTERN A
(Of the 245 classifiable surveys returned, 165 fell within this curriculum.)

COMMON CONTENT AREAS

Historical Geology
Mineralogy
Physical Geology
Stratigraphy
Structural Geology

Optional Content Areas (Select 5)

Field Methods
Geologic Mapping
Geomorphology
Igneous and Metamorphic Petrology
Invertebrate Paleontology
Optical Mineralogy
Petrology/Petrography
Sedimentation

PACAT GEOLOGY CURRICULUM PATTERN B
(Of the 245 classifiable surveys returned, 41 fell within this curriculum.)

COMMON CONTENT AREAS

Historical Geology
Mineralogy
Physical Geology

Optional Content Areas (Select 7)

Environment/Problems
Field Methods
Geomorphology
Igneous and Metamorphic Petrology
Invertebrate Paleontology
Optical Mineralogy
Petrology/Petrography
Sedimentation
Stratigraphy
Structural Geology

PACAT GEOLOGY CURRICULUM PATTERN C
(Of the 245 classifiable surveys returned, 21 fell within this curriculum.)

COMMON CONTENT AREAS

Mineralogy
Petrology/Petrography
Structural Geology

Optional Content Areas (Select 7)

Economic Geology
Environment/Problems
Field Methods
Geochemistry
Geomorphology
Igneous and Metamorphic Petrology
Invertebrate Paleontology
Optical Mineralogy
Sedimentation
Stratigraphy

PACAT GEOLOGY CURRICULUM PATTERN D
(Of the 245 classifiable surveys returned, 18 fell within this curriculum.)

COMMON CONTENT AREAS

Historical Geology
Physical Geology

Optional Content Areas (Select 2)

Geomorphology
Mineralogy
Structural Geology

PACAT HISTORY CURRICULUM PATTERN A

(Of the 219 classifiable surveys returned, **141** fell within this curriculum.)

COMMON CONTENT AREAS

European: Medieval
European: Early Modern
European: Modern To Present

Optional Content Areas (Select 7)

U.S.: Colonial to 1763
U.S.: 1763 to 1820
U.S.: 1820 to 1890
U.S.: 1890 to 1940
U.S.: 1940 to Present
U.S.: Black History
U.S.: Military/Diplomatic
U.S.: Social/Intellectual/Cultural
European: Ancient
European: French Revolution and Napoleon
European: Renaissance and Reformation
Non-European: African
Non-European: China, Japan, India
Historiography

PACAT HISTORY CURRICULUM PATTERN B

(Of the 219 classifiable surveys returned, **53** fell within this curriculum.)

COMMON CONTENT AREAS

U.S.: 1763 to 1820
U.S.: 1820 to 1890

Optional Content Areas (Select 4)

U.S.: Colonial to 1763
U.S.: 1890 to 1940
U.S.: 1940 to Present
U.S.: American Indian/Western U.S.
U.S.: Black History
U.S.: Military/Diplomatic
U.S.: Southern

PACAT HISTORY CURRICULUM PATTERN C

(Of the 219 classifiable surveys returned, **25** fell within this curriculum.)

COMMON CONTENT AREAS

Historiography
Research Methods for History

Optional Content Areas (Select 2)

U.S.: 1890 to 1940
European: Ancient
European: Renaissance and Reformation

PACAT MATHEMATICS CURRICULUM PATTERN A

(Of the 428 classifiable surveys returned, 294 fell within this curriculum.)

COMMON CONTENT AREAS	Optional Content Areas (Select 5)
3-Dimensional Vector Calculus Abstract Algebra Differential Calculus Integral Calculus Linear Algebra	Complex Analysis Differential Equations Geometry Mathematical Models Numerical Analysis Partial Differential Equations Probability Real Analysis Statistics

---

PACAT MATHEMATICS CURRICULUM PATTERN B

(Of the 428 classifiable surveys returned, 54 fell within this curriculum.)

COMMON CONTENT AREAS	Optional Content Areas (Select 5)
3-Dimensional Vector Calculus Differential Calculus Integral Calculus Linear Algebra	Abstract Algebra Complex Analysis Differential Equations Geometry Mathematical Models Numerical Analysis Partial Differential Equations Probability Real Analysis Statistics

---

PACAT MATHEMATICS CURRICULUM PATTERN C

(Of the 428 classifiable surveys returned, 80 fell within this curriculum.)

COMMON CONTENT AREAS	Optional Content Areas (Select 8)
Differential Calculus Integral Calculus	Abnormal Abstract Algebra Complex Analysis Differential Equations Geometry Linear Algebra Mathematical Models Numerical Analysis Probability Real Analysis Statistics Topology

---

NOTE: These are **preliminary** patterns. Although comments are always appreciated, we particularly would like to receive evaluations and suggested revisions prior to January 30, 1993. Please send comments and suggestions to:

PACAT
Austin Peay State University
P.O. Box 4568
Clarksville, TN 37044

PACAT MASS COMMUNICATION CURRICULUM PATTERN A

(Of the 253 classifiable surveys returned, 75 fell within this curriculum.)

COMMON CONTENT AREAS

Public Speaking
Theories in Communication

Optional Content Areas (Select 8)

Communications Research Methods
Group Leadership Techniques
History of Cinema
History of Radio
History of Television
Interpersonal Communications
Laws and Ethics
Mass Communication
Mass Media and Society
News Writing
Persuasion

PACAT MASS COMMUNICATION CURRICULUM PATTERN B

(Of the 253 classifiable surveys returned, 66 fell within this curriculum.)

COMMON CONTENT AREAS

Laws and Ethics
News Writing

Optional Content Areas (Select 8)

Advertising
Editorial and Feature Writing
History of Television
Mass Media and Society
Mass Media Writing
Newspaper Editing
Production: Photography
Production: Radio
Production: Television
Public Relations
Reporting

PACAT MASS COMMUNICATION CURRICULUM PATTERN C

(Of the 253 classifiable surveys returned, 16 fell within this curriculum.)

COMMON CONTENT AREAS

Communications Research Methods
Theories in Communication

Optional Content Areas (Select 6)

History of Cinema
History of Radio
History of Television
Laws and Ethics
Mass Media and Society
Mass Media Writing
Production: Electronic Media
Production: Radio
Production: Television

BEST COPY AVAILABLE

PACAT MASS COMMUNICATION CURRICULUM PATTERN D

(Of the 253 classifiable surveys returned, 47 fell within this curriculum.)

COMMON CONTENT AREAS

Interpersonal Communications
Public Speaking

Optional Content Areas (Select 5)

Debate/Discussion
Group Leadership Techniques
History of Theater
Mass Communication
Mass Media and Society
Persuasion
Production: Theater
Theories in Communication

PACAT MASS COMMUNICATION CURRICULUM PATTERN E

(Of the 253 classifiable surveys returned, 12 fell within this curriculum.)

COMMON CONTENT AREAS

Communications Research Methods
Mass Communication

Optional Content Areas (Select 4)

History of Theater
Interpersonal Communications
Mass Media Writing
Persuasion
Production: Television
Public Speaking

PACAT MASS COMMUNICATION CURRICULUM PATTERN F

(Of the 253 classifiable surveys returned, 15 fell within this curriculum.)

COMMON CONTENT AREAS

Laws and Ethics
News Writing

Optional Content Areas (Select 3)

Communications Research Methods
Editorial and Feature Writing
Mass Media and Society
Newspaper Editing
Public Relations

PACAT MASS COMMUNICATION CURRICULUM PATTERN G

(Of the 253 classifiable surveys returned, 10 fell within this curriculum.)

COMMON CONTENT AREAS

Laws and Ethics
Mass Media and Society

Optional Content Areas (Select 2)

Advertising
Mass Media Writing
News Writing

PACAT MASS COMMUNICATION CURRICULUM PATTERN H

(Of the 253 classifiable surveys returned, 12 fell within this curriculum.)

COMMON CONTENT AREAS

Communications Research Methods
Theories in Communication

Optional Content Areas (Select 2)

Debate/Discussion
Interpersonal Communications
Persuasion

PACAT PHYSICS CURRICULUM PATTERN A

(Of the 359 classifiable surveys returned, 174 fell within this curriculum.)

COMMON CONTENT AREAS

Atomic Physics and Spectroscopy
Electricity (Alternating Current)
Magnetism
Mechanics
Quantum Mechanics

Optional Content Areas (Select 5)

Condensed Matter Physics
Heat and Thermodynamics
Nuclear Physics
Optics: Ray
Optics: Wave Motion
Physical Electronics (Direct Current)
Relativity
Statistical/Mathematical Physics

PACAT PHYSICS CURRICULUM PATTERN B

(Of the 359 classifiable surveys returned, 63 fell within this curriculum.)

COMMON CONTENT AREAS

Mechanics
Magnetism
Quantum Mechanics
Electricity (Alternating Current)
Heat and Thermodynamics

Optional Content Areas (Select 5)

Astronomy
Nuclear Physics
Optics: Ray
Optics: Wave Motion
Particle Physics
Physical Electronics (Direct Current)
Relativity
Statistical/Mathematical Physics

PACAT PHYSICS CURRICULUM PATTERN C

(Of the 359 classifiable surveys returned, 12 fell within this curriculum.)

COMMON CONTENT AREAS

Atomic Physics and Spectroscopy
Magnetism
Mechanics

Optional Content Areas (Select 7)

Astronomy
Electricity (Alternating Current)
Heat and Thermodynamics
Nuclear Physics
Optics: Ray
Optics: Wave Motion
Physical Electronics (Direct Current)
Quantum Mechanics
Relativity
Statistical/Mathematical Physics

PACAT PHYSICS CURRICULUM PATTERN D

(Of the 359 classifiable surveys returned, 17 fell within this curriculum.)

COMMON CONTENT AREAS

Electricity (Alternating Current)
Magnetism
Mechanics

Optional Content Areas (Select 5)

Astronomy
Condensed Matter Physics
Heat and Thermodynamics
Optics: Ray
Optics: Wave Motion
Physical Electronics (Direct Current)
Quantum Mechanics
Relativity

PACAT PHYSICS CURRICULUM PATTERN E

(Of the 359 classifiable surveys returned, 31 fell within this curriculum.)

COMMON CONTENT AREAS	Optional Content Areas (Select 2)
Atomic Physics and Spectroscopy	Electricity (Alternating Current)
Mechanics	Magnetism
Quantum Mechanics	Nuclear Physics
	Relativity

PACAT PSYCHOLOGY CURRICULUM PATTERN A

(Of the 585 classifiable surveys returned, 140 fell within this curriculum.)

COMMON CONTENT AREAS

- Abnormal
- Animal Learning and Motivation
- Experimental Design
- Human Learning and Cognition
- Personality
- Physiological
- Social
- Statistics

Optional Content Areas (Select 2)

- Clinical and Counseling
- Developmental
- History and Systems
- Sensation and Perception
- Testing and Measurement

PACAT PSYCHOLOGY CURRICULUM PATTERN B

(Of the 585 classifiable surveys returned, 95 fell within this curriculum.)

COMMON CONTENT AREAS

- Abnormal
- Developmental
- Experimental Design
- History and Systems
- Personality
- Statistics

Optional Content Areas (Select 2)

- Animal Learning and Motivation
- Clinical and Counseling
- Human Learning and Cognition
- Physiological
- Sensation and Perception
- Social
- Testing and Measurement

PACAT PSYCHOLOGY CURRICULUM PATTERN C

(Of the 585 classifiable surveys returned, 92 fell within this curriculum.)

COMMON CONTENT AREAS

- Developmental
- Experimental Design
- Social
- Statistics

Optional Content Areas (Select 2)

- Abnormal
- Clinical and Counseling
- History and Systems
- Human Learning and Cognition
- Personality
- Physiological
- Testing and Measurement

PACAT PSYCHOLOGY CURRICULUM PATTERN D

(Of the 585 classifiable surveys returned, 43 fell within this curriculum.)

COMMON CONTENT AREAS

- Experimental Design
- History and Systems
- Statistics

Optional Content Areas (Select 1)

- Abnormal
- Clinical and Counseling
- Developmental
- Human Learning and Cognition
- Personality
- Physiological
- Social
- Testing and Measurement

PACAT PSYCHOLOGY CURRICULUM PATTERN E

(Of the 585 classifiable surveys returned, 53 fell within this curriculum.)

COMMON CONTENT AREAS

- Experimental Design
- Statistics

Optional Content Areas (Select 2)

- Abnormal
- Animal Learning and Motivation
- Developmental
- Human Learning and Cognition
- Personality
- Physiological
- Sensation and Perception

PACAT PSYCHOLOGY CURRICULUM PATTERN F

(Of the 585 classifiable surveys returned, 31 fell within this curriculum.)

COMMON CONTENT AREA

- Statistics

Optional Content Areas (Select 3)

- History and Systems
- Human Learning and Cognition
- Personality
- Physiological
- Social

PACAT PSYCHOLOGY CURRICULUM PATTERN G

(Of the 585 classifiable surveys returned, 32 fell within this curriculum.)

COMMON CONTENT AREAS

- Abnormal
- Developmental
- Social

Optional Content Areas (Select 3)

- Animal Learning and Motivation
- Clinical and Counseling
- Experimental Design
- Human Learning and Cognition
- Personality
- Physiological
- Testing and Measurement

PACAT PSYCHOLOGY CURRICULUM PATTERN H

(Of the 585 classifiable surveys returned, 9 fell within this curriculum.)

COMMON CONTENT AREAS

- Abnormal
- Experimental Design

Optional Content Areas (Select 2)

- Animal Learning and Motivation
- Clinical and Counseling
- Developmental
- History and Systems
- Statistics
- Testing and Measurement

PACAT PSYCHOLOGY CURRICULUM PATTERN I

(Of the 585 classifiable surveys returned, 90 fell within this curriculum.)

COMMON CONTENT AREAS

- Experimental Design
- Human Learning and Cognition
- Statistics

Optional Content Areas (Select 3)

- Abnormal Psychology
- History and Systems of Psychology
- Personality
- Physiological Psychology
- Testing and Measurement

BEST COPY AVAILABLE

PACAT SOCIOLOGY CURRICULUM PATTERN A

(Of the 462 classifiable surveys returned, 379 fell within this curriculum.)

COMMON CONTENT AREAS	Optional Content Areas (Select 7)
Research Methods Social Theory/Thought Statistics	Criminology Deviance and Corrections Marriage and Family Race and Ethnic Relations Social Anthropology Social Change Social Problems Social Stratification Society and the Individual (Combined Areas) Medical Sociology, Sociology of the Aged, and Urban Sociology

---

PACAT SOCIOLOGY CURRICULUM PATTERN B

(Of the **462** classifiable surveys returned, **61** fell within this curriculum.)

[As in Curriculum Pattern A above but the department selects 5 options.]

PACAT SOCIOLOGY CURRICULUM PATTERN C

(Of the **462** classifiable surveys returned, **22** fell within this curriculum.)

[As in Curriculum Pattern A above but the department selects 3 options.]

NOTE: These are **preliminary** patterns. Although comments are always appreciated, we particularly would like to receive evaluations and suggested revisions prior to January 30, 1993. After this date, we will be actively seeking to build a national consortium of departments for the purpose of outcomes assessment using the patterns above. Please send comments and suggestions to:

PACAT
Austin Peay State University
P.O. Box 4568
Clarksville, TN 37044

PACAT SOCIAL WORK CURRICULUM PATTERN A

(Of the 153 classifiable surveys returned, 119 fell within this curriculum.)

COMMON CONTENT AREAS

Human Behavior in the Social Environment
Methods of Intervention
Policy-Program Analysis
Research Methods
Social Welfare Policy and Services
Social Work Practice Methods
Social Work Skills

Optional Content Areas (Select 3)

Afro-American Family
Child and Adolescent Behavior
Current Issues in Social Work
Quantitative Methods/Statistics
Social Services for Child and Family

PACAT SOCIAL WORK CURRICULUM PATTERN B

(Of the 153 classifiable surveys returned, 34 fell within this curriculum.)

COMMON CONTENT AREAS

Social Welfare Policy and Services
Social Work Practice Methods
Social Work Skills

Optional Content Areas (Select 5)

Child and Adolescent Behavior
Current Issues in Social Work
Human Behavior in the Social Environment
Human Sexuality
Methods of Intervention
Policy-Program Analysis
Quantitative Methods/Statistics
Research Methods

PACAT SOCIAL WORK CURRICULUM PATTERN C

(This pattern serves as the basis of the **Area Concentration Achievement Test** developed by a consortium of Tennessee Social Work departments in 1984 and does not conform to the same structural divisions as those above.)

CONTENT AREAS

Human Behavior in the Social Environment
Policy
Practice
Research

APPENDIX V: Publications, Presentations and Workshops

Publications by PACAT Staff (1988-92)

Golden, A. and Squire, D. (1991). The third alternative. *Assessment Update, 3 (2)*, 10-11.

Golden, A. (1991). PACAT: A national project in cooperative major field assessment. In R. McCormick (Ed.), *The 1990 Montclair assessment conference: Strategies and prospects for the decade* (pp. 80-83). Upper Montclair, NJ: Montclair State College.

Golden, A. (1989). Project for Area Concentration Achievement Testing. Washington, DC: AASCU/ERIC Model Programs Inventory Project. (ERIC Document Reproduction Service No. ED 306 863).

Other Publications Concerning PACAT

Cone, A. (1988). Low tech/high touch criterion-based learning. *Psychological Reports, 63*, 203-207.

Cone, A. (1990). Frequency of testing in criterion-based learning. *Psychological Reports, 67*, 396-398.

Presentations by PACAT Staff (1988-92)

Golden, A., Carter, G., and Ferraro, E. (1992, March). *The ACAT: A Model for Consortium Based Outcomes Assessment in Social Work.* Presented at the meeting of the Council for Social Work Education. Kansas City, MO.

Rogers, R. (Moderator), Beers, S., **Golden, A.**, Goldstein, M., and Patterson, D. (1992, March). *CTUP Roundtable: Assessment of the Undergraduate Psychology Program.* Roundtable presentation at the meeting of the Southeastern Psychological Association. Knoxville, TN.

Lutzer, D. (Moderator), Bell, D., Fletcher, J., **Golden, A.**, Medway, F., Myers, C. (1991, November). *Assessment as Faculty Development.* Presented at the FIPSE National Project Directors' Meeting. Washington, DC.

Golden, A. (1991, October). *Area Concentration Achievement Tests: History and Literature.* Presentation to the Appalachian College Assessment Consortium. Johnson City, TN.

Golden, A., Smith, M., Cone, A., and Kidda, M. (1991, June). *The Area Concentration Achievement Test (ACAT): Different strategies for assessing the psychology major.* Panel presentation at the Sixth AAHE Conference on Assessment in Higher Education. San Francisco, CA.

McGraw, K. (Moderator), **Golden, A.**, Johnson, R., Matthews, J., and Smith M. (1991, March). *Outcome evaluation in undergraduate psychology.* Panel presentation at the meeting of the Southeastern Psychological Association. New Orleans, LA.

Golden, A. (1990, October). *How to Participate in PACAT: Specific Options and Procedures.* Presented to the South Carolina Higher Education Assessment Consortium. Myrtle Beach, SC.

Golden, A. (1990, October). *PACAT: A Third Alternative for Assessing Majors.* Presented to the South Carolina Higher Education Assessment Consortium. Myrtle Beach, SC.

Cook, C. (Moderator), Amiran, M., **Golden, A.**, and Wright, B. (1990, June). *Why reinvent the wheel? The gentle art of "borrowing" instruments.* Panel presentation at the Fifth AAHE Conference on Assessment in Higher Education. Washington, DC.

Golden, A. and **Squire, D.** (1990, June). *A national survey of requirements for the psychology major.* Poster presented at the meeting of the American Psychological Society. Dallas, TX.

Golden, A. (1990, May). *Project for Area Concentration Achievement Testing.* Presentation at the 3rd Annual Conference on the Assessment of Institutional Effectiveness. Atlanta, GA.

Crain, M. and Golden A. (1990, April). *An Examination of the Validity of the ACAT in Psychology.* Paper presented at the meeting of the Southeastern Psychological Association. Atlanta, GA.

Golden, A. (1990, April). *The PACAT Model and its Application to the Content Domain of Political Science.* Roundtable presentation at the meeting of the Midwestern Political Science Association. Chicago, IL.

Golden, A. (1990, April). *PACAT: Results of a 26 state survey of psychology curricula.* Paper presented at the meeting of the Southeastern Psychological Association. Atlanta, GA.

Golden, A. (1990, February). *Getting started in assessment: General observations and the PACAT model.* Presentation to the faculty of Johnson C. Smith University, Charlotte, NC.

Golden, A. (1990, February). *Getting started in assessment: General observations and the PACAT model.* Presentation to the faculty of Jacksonville State University. Jacksonville, AL.

Golden, A. (1990, February). *PACAT Assessment of Major Objectives.* Paper presented at the Charlotte Area Educational Consortium Assessment Conference. Charlotte, NC.

Golden, A. (1989, June). *Item banks for building instruments.* Joint session with Roy Hardy, Director of the Educational Testing Service's Atlanta office at the American Association for Higher Education Fourth National Conference in Higher Education. Atlanta, GA.

Golden, A., Hart, M., and **LeDuc, P.** (1989, March). *Project for Area Concentration Achievement Testing (PACAT): Report of the psychology curriculum survey and discussion of strategies for meeting assessment requirements.* Paper presented at the meeting of the Southeastern Psychological Association. Washington, DC.

Golden, A. (1989, March). *How to get involved with PACAT in the construction of cooperative assessment instruments.* Paper presented at the meeting of the South Carolina Higher Education Assessment Network. Rock Hill, SC.

Golden, A. (1989, February). *PACAT: An alternative approach to the construction of nationally normed examinations.* Presentation to the faculty and administration of Winthrop College, Rock Hill, SC.

Golden, A. (1988, October). *Test item banks: A cross between standardized tests & faculty designed tests.* Paper presented at the FIPSE National Project Directors' Meeting, Washington, DC.

Golden, A. (1988, July). *ACAT: A third alternative for assessment.* Presented to the faculty of the Department of Psychology, University of Alabama, Tuscaloosa, AL, July 1988.

Workshops/Discussion Groups Conducted by PACAT Staff (1988-92)

Charlotte Area Educational Consortium (Golden, A.)
Jacksonville State University (Golden, A. and Squire, D.)
Johnson C. Smith University (Golden, A.)
Northwest Missouri State University (Golden, A. and Squire, D.)
Regis University (Golden, A.)
South Carolina Higher Education Assessment Network (Golden, A.)
Winthrop University (Golden, A.)

APPENDIX VI: Results of the Assessment Planning Survey

	YES	NO
Considering Assessment	966	324

(Only the 966 departments responding affirmatively are included below.)

	YES	%
Status:		
Discussing	378	39.1
Planning	256	26.5
Implementing	254	26.3
Already Implemented	206	21.3
Reason:		
Accreditation	388	40.2
Administrative Decision	384	39.8
Departmental Decision	379	39.2
State Mandate	170	17.6
Governing Board Directive	123	12.7
Methods:		
Nationally Normed Examination	529	54.8
Classroom Examination	409	42.3
Senior Seminar	388	40.2
Senior Paper	305	31.6
Exit Interview	257	26.6
Locally Developed Instrument	233	24.1
Portfolio	119	12.3
Oral Examination	88	9.1
Consortium Test Instrument	83	8.6
Juried Presentation	71	7.3
Professional Examination	45	4.7

BEST COPY AVAILABLE

APPENDIX VII: Sample Materials Developed by PACAT

PACAT

PROJECT FOR AREA CONCENTRATION ACHIEVEMENT TESTING

The Project for Area Concentration Achievement Testing (PACAT), funded by a grant from the U.S. Department of Education Fund for the Improvement of Postsecondary Education, is a national project which performs surveys of academic curricula by content area, collects examination items from the faculty of participating departments, and constructs, distributes, and scores the Area Concentration Achievement Test (ACAT) at nominal cost to participating departments. In order that they might better reflect academic diversity, versions of the ACAT for each discipline are constructed which conform as closely as possible to the different content area emphases identified by the surveys. PACAT is responding to a need within the academic community for models intended for outcomes assessment where the emphasis is on the evaluation of curricula.

ORIGIN OF PACAT

In 1983, Dr. Anthony Golden developed a model for major field assessment for a consortium of psychology departments in Tennessee. By 1987, the model had been extended to serve additional consortia in social work and political science. Since its introduction, the ACAT has gained widespread acceptance as a result of its ability to meet differing departmental needs, provide curriculum specific feedback and assistance with interpretation, and its cost-effectiveness. In August of 1988, PACAT was formed with a grant from the U.S. Department of Education Fund for the Improvement of Postsecondary Education (FIPSE). To date, over 7,000 ACATs have been administered at 61 public and private postsecondary institutions in 28 states.

SURVEYS

PACAT is surveying curricula and developing examinations in several academic disciplines. The surveys ascertain the content areas required by individual departments for a major. The results are used to isolate common patterns of curricular offerings and requirements, identified by content area rather than course. Survey results are distributed to those departments which request them. Since 1988, surveys have been sent to 12,500 academic departments with returns in excess of 5,600. All 50 states, the District of Columbia, Puerto Rico and the Virgin Islands have been included in the survey group.

Disciplinary Areas Included in Surveys

Art*
Agriculture*
Biology*
Chemistry
Communication*
Criminal Justice§
Literature in English*
Geology
History§
Mathematics
Physics
Political Science*
Psychology*
Public Administration
Social Work*
Sociology

* ACAT Currently available
§ ACAT Preliminary version available 1992-3

TEST POOLS

Because the faculty who teach a discipline are best suited to determine what a student should learn from it, the results of the surveys are used to solicit examination items from faculty at participating institutions. Participants are asked to voluntarily submit objective items which reflect material that they consider to be of primary importance to their area of expertise and the cognitive level at which the student is expected to manipulate the material. Supplementary materials are available to aid in the construction of these items. The item pool developed in this manner, with contributions from a large number of faculty at different institutions, is assumed to be representative of the educational goals of the participating departments.

PACAT also can accommodate essay or "open ended" items and will assist in the development of scoring guidelines. The use of these items requires that faculty continue their participation in the role of readers when the items are administered.

Current Item Pool Size

Agriculture	400
Art	100
Biology	350
History	350
Literature in English	295
Political Science	1490
Psychology	2750
Social Work	850

CONSTRUCTION OF THE ACAT

The test item pools are used to construct examinations (Area Concentration Achievement Tests) which fit the content area profiles constructed from the survey data. ACATs then are provided to the participating departments for a nominal fee which includes test booklets, answer sheets, scoring, score reports and assistance with interpretation. A variety of score report formats are available. The examinations are revised using items which are field tested in earlier versions of the test. Parallel forms are used to increase the overall amount of material sampled and increase test security.

EXAMPLES OF ACAT CONTENT AREAS

Literature in English
- American Modern (1860s to present)
- American to 1865
- British Medieval Period
- British Renaissance
- British Romantic
- British Victorian
- Linguistics
- Restoration/18th Century/PreRomantic
- Shakespeare

- Political Science
  - International Politics/Comparative Government
  - Normative and Empirical Theory
  - Public Administration
  - U.S. Government-Institutions, Policies, Processes

- Psychology
  - Abnormal
  - Animal Learning & Motivation
  - Clinical/Counseling
  - Development
  - Experimental Design
  - History & Systems
  - Human Learning & Cognition
  - Personality
  - Physiological
  - Sensation & Perception
  - Social
  - Statistics

- Social Work
  - Human Behavior in the Social Environment
  - Policy
  - Social Work Practice
  - Research Methods

OTHER INFORMATION

Demographic information in the following areas is collected at the time of administration and provided in summary format with the score reports.

Age, Gender and Ethnicity/Content Areas Taken/English as 2nd Language/First Generation Student Status/GPA Overall and in Major/Handicap Status/Plans for Graduate Study/Transfer Status

SENSITIVITY OF THE ACAT

Several investigations are either completed or in progress to determine the sensitivity of the ACAT to educational history. For the psychology ACAT, preliminary data indicate that students who are completing their first introductory level course in psychology at four different institutions produce overall scores between the 7th and 15th %'iles while those graduating with a major in psychology score at the 50th %'ile and those who have entered a graduate program in psychology score at the 70th %'ile. These data suggest that the ACAT in psychology is sensitive to a range of proficiency levels. Similar findings have been reported for the ACAT in social work. Additional research suggests that the ACAT in psychology is sensitive to classroom performance across several years of study in the major rather than just courses taken during the senior year.

WAYS TO USE THE ACAT

Plan 1. PACAT will supply and score graduating senior exit exams at $3 in the first year of test availability. The cost rises to $5 per examinee in the second year, $8 in the third year and a ceiling of $10 in the fourth year. The cost per examinee includes the use of the test booklet, an answer form, scoring and mailing of score reports. Shipping costs are added at the time of shipment.

Plan 2 allows for the use of a pretest/post-test design. Students are tested when the major is declared and then again as graduating seniors. The pretest exams are provided at 50% of their regular cost. PACAT will score these exams and hold the scores rather than reporting them to the institution. Post-test exams will be provided for the regular exit examination price. Both pre- and post-test scores will be reported for students taking both tests.

Plans 3 (undergraduate) and 4 (graduate) provide and score the ACAT for experimental purposes at a cost of $3 per examinee under the conditions that an experimental protocol is submitted to and approved by PACAT and that the ACAT is credited by name in all publications and presentations resulting from its use.

Credits for Unused Booklets: Departments returning test booklets unused will receive a credit equal to $3 less than cost per booklet. While the credit cannot be issued as a refund, it will be applied to the next order for test booklets.

PACAT
Box 4568
Austin Peay State University
Clarksville, TN 37044

PHONE: (615) 648-7451
FAX: (615) 648-7475
BITNET: ANTHONY@APSU

PACAT is funded by grant #P116B81711 from the fund for the Improvement of Postsecondary Education to Dr. Anthony Golden and Austin Peay State University. For FY90-91, Federal funding of $88,400 provides 70% of project operating costs with Austin Peay State University providing direct and indirect support of $38,144 (30%). Austin Peay State University is an equal opportunity employer committed to the education of a non-racially identifiable student body.

AP-961/12-90

PREPARING TEST ITEMS FOR PACAT

In order for the Area Concentration Achievement Tests to reflect accurately the perceptions and priorities of participating departments, faculty are encouraged to submit test items for use on the test. When contemplating the subject matter of an item, please use the following guidelines.

-Write in one or more of the areas listed in the PACAT curriculum to be used by your department.
-Write in an area in which **you** contribute to the undergraduate curriculum in your department.
-Write items that reflect **your expectations of a graduating senior major** with respect to content and complexity.
-Follow the format guidelines in the HOW TO SUBMIT TEST ITEMS TO PACAT document.

MULTIPLE CHOICE ITEMS

The Stem

The most frequently used stem formats are the completion, incomplete sentence, and direct question types. Although used less often, a negative type stem also can be constructed. Consider the following direct question.

> What is the best description of the current concept of learning disabilities in general?

Although it seems to ask a specific question, it uses the phrases "best description," "current concept" and "in general." Whenever a question asks for the "best" answer, it may be asking for a subjective interpretation and must limit the examinee to the listed alternatives. This question does not. The phrase "current concept" implies that one or more alternatives are correct older concepts which have been revised or rejected and should be used only if appropriate. The last problem is the phrase "in general." Is the intent of the question to ask for the best general statement or the best statement of the general category of disorders? Although the latter is the actual intent, it is not clear from the wording of the stem.

The next example is of a negative stem which requires the identification of three or four correct alternatives to determine which is not correct. This type of item samples a somewhat greater breadth of information. The major objection to its use is that it also measures grammatical comprehension which is not necessarily relevant to its content.

> The operational portion of the learning disabilities definition states that a child with learning disabilities has a discrepancy between achievement and intellectual ability in one or more of seven areas. All of the following are areas in which a child could have a learning disability **except**

This example contains information which can be used to answer other items. The following revision eliminates the unnecessary information while preserving the original intent of the item.

> Which of the following areas is **not** one in which a child could have a learning disability according to current Federal statutes?

The Alternatives

Although writing the correct alternative takes little time, the distractors can be both difficult and frustrating. Good distractors should fall into one or more of the following categories.

1. the correct result of an incorrect procedure or application
2. the correct answers in an incorrect order
3. the result of a common error or misunderstanding
4. a plausible response which is not correct

Care should be taken that the distractors are in fact incorrect under all circumstances which may be explicitly or implicitly suggested by the stem. Care should also be taken that the correct alternative and the distractors are phrased in a similar fashion. Take, for example, the following test item.

A. uneven physical growth patterns
B. degree of academic difficulty
C. discrepancy between potential and achievement
D. degree of brain impairment

The correct alternative, C, is longer than the others and is the only alternative which implies a comparison. If the examinee is aware only that a comparison is involved, the correct answer can be found. One solution is to rewrite the alternatives so that each contains a comparison. In some instances, both the stem and the alternatives can be reworded for brevity and clarity. If the comparison implied in each alternative above is made explicit in the stem, the alternatives can be shortened considerably.

...a discrepancy between
A. physical growth and age norms.
B. academic difficulty and national standards.
C. achievement and potential.
D. neurological development and age norms.

The incomplete sentence stem requires the selection of multiple answers contained within a single alternative. The appearance of the stem suggests that not only must the correct answers be selected, they must be in the correct order. Unfortunately, this type of item may not work as intended.

Vital life support functions are controlled by the ____ while muscle tone and fine motor control are controlled by the ____.
A. pons, frontal lobes
B. cerebellum, medulla
C. frontal lobes, pons
D. medulla, cerebellum

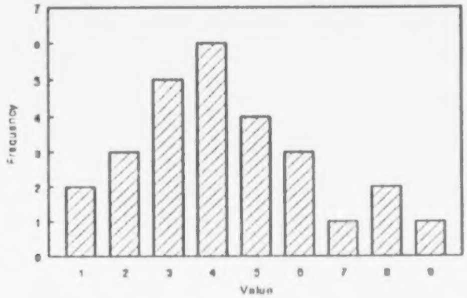
Half of the alternatives can be eliminated by knowing that either pons or frontal lobes is an incorrect response or that either medulla or cerebellum is correct. Knowing only one of four pieces of information will reduce by half the number of alternatives. Once this decision has been made, it is necessary only to know one correct answer to select the correct alternative. As a result, an item intended to assess knowledge about two structures and the ability to identify them in the correct order actually may be measuring a variety of other response strategies. Increasing the number of items required may not eliminate this problem.

The writer of test items for PACAT should avoid the use of "all of the above" type alternatives. In most instances, an examinee will seize upon this alternative whenever it appears that two or more alternatives **might** be correct. Just as in the case of the multiple answer alternatives, a correct response does not necessarily indicate knowledge about the full substance of the question.

Moreover, where only the occasional item has an "all of the above" or "none of the above" or "A and B above" type alternative, examinees tend to assume that it is included because it is correct. If all four distractors in a 5 alternative item are valid and well written, then the probability of a correct guess will be reduced compared to a 4 alternative item. Otherwise, it is better to write a good 4 alternative item than it is to add a poor distractor just to have 5.

Other Types of Multiple Choice Items

Questions which present information in one format and require the examinee to translate or interpret it are used often in the laboratory and social sciences. The presentation format can be any one which is different from that of the alternatives. It also is possible to present verbal information in the stem which must be matched with alternatives which are in another format.



The mean of the distribution above is

A. 4.000
B. 4.296
C. 4.333
D. 4.370

Alternative A is the mode rather than the mean. Alternatives B and D are the correct total divided by one more than and one less than the correct number of observations. The next example is of information presented in tabular format. Tables should be labeled completely unless labeling is being assessed.

Given the following ANOVA table:

SOURCE	df	MS	F	
Training (A)	1	1.15	0.88	
Meal Pattern (B)	1	8.36	6.45	$p < .05$
Illumination (C)	1	3.19	2.45	
A x B	1	6.78	5.21	$p < .05$
A x C	1	.75	.57	
B x C	1	7.13	5.48	$p < .05$
A x B x C	1	.09	.06	
error	72	1.30		

A. Meal Pattern failed to account for a significant proportion of the variability.
B. The effects of Meal Pattern were neither independent of Training nor of Illumination.
C. Since Training was not significant, the interaction of Training with Meal Pattern can be ignored.
D. Since only Meal Pattern produced a significant main effect, the experiment failed.

BEST COPY AVAILABLE

A series of items can be based on a passage of text which describes a situation or problem. To measure the examinee's ability to interpret and apply information, the situation described in the text should not be a standard example but rather should be constructed especially for the assessment instrument. The examinee should not be able to recognize the situation immediately and therefore select responses which already have been learned to match a particular situation or problem. The text passage should be complete in that it contains all of the information necessary to select the correct responses and should have sufficient details to permit the generation of numerous test items.

> A research study is conducted using students who are required to take General Psychology. No attempt is made to identify Psychology majors among the participants. The subjects are told that they are participating in an experiment and are divided into four groups as follows.
>
> (A) Regular Instruction/Regular Text
> (B) Experimental Instruction/Regular Text
> (C) Regular Instruction/Experimental Text
> (D) Experimental Instruction/Experimental Text
>
> Regular instruction groups receive 3 lectures a week and must take notes, 5 minutes are set aside at the end of each class for discussion. Experimental instruction involves discussion groups, frequent quizzes, and individual tutoring. The regular text is a standard textbook that has been in use for several years. The experimental text has been written for this experiment and self-test items, experiments that can be carried out by the students, and a number of other features. At the end of the term, all of the subjects take the same final examination and their scores are compared statistically.
>
> This experimental design is
> A. within groups
> B. 2 X 2 factorial
> C. 2 X 3 factorial
> D. Solomon 4-group
>
> The group which most closely approximates a control group for all of the experimental variables is
> A. Group A
> B. Group B
> C. Group C
> D. Group D
>
> A statistical comparison which looked only at textbook type would compare
> A. A + C vs. B + D
> B. A + B vs. D + C
> C. A + D vs. B + C
> D. A vs. B + C + D

ESSAY ITEMS

General Information

In the amount of time required to write a 20 minute essay, a student can answer 30-40 multiple choice items. The goal of an essay item should be to assess the examinee's **depth** of knowledge and ability to **manipulate** and **integrate** that knowledge. As such, essay questions should extend well beyond the sample which can be obtained through a multiple choice format.

Departments electing to include an essay component in their examinations must commit themselves to serving as readers for students at other institutions. The turn-around time typically will be **5** working days with faculty reading twice as many essay components as the number of ACATs their department administers. This insures two readers for each essay answer. Scoring forms will be provided along with each essay to be evaluated.

The Question

Like multiple choice stems, essay questions should be complete and unambiguous. The question should delineate clearly the topic, issue or problem to be addressed without giving excessive cues as to the precise answer required. The question should be focused sufficiently to limit the range of answers to those that will best illustrate the desired skills and knowledge. It also is important to structure the question so that a complete answer can be written and reread in approximately 15 to 20 minutes. Essay components of the ACAT will contain three to four questions with an overall 65 minute time limit.

Consider the following question.

> Describe the events leading to the War of 1812.

For a test such as the ACAT, this question is far too broad. Author James A. Michener probably would begin an answer with the creation of the universe. For the examinee, no clear direction is given. The item could be rewritten as follows.

> Explain how the following factors led to the War of 1812.
> 1. The Napoleonic Wars
> 2. U.S. desires for territorial expansion

Avoid questions such as the following which simply require the student to list a series of points, a level of sophistication better measured by multiple choice items.

> List 3 factors which led to the War of 1812.

Essay items for the ACAT should require the examinee to perform such tasks as arguing a case or point of view, discussing or explaining a relationship, constructing a novel solution to a problem, or reaching a documented conclusion.

Answer Key

Essay questions asked as part of the ACAT will be scored by two randomly assigned readers according to four criteria: originality; structure; content; overall impression. Guidelines as to content should be devised by the item's author in two categories. The first lists major points which the author feels **must** be included in a complete answer. The second lists additional points which **should** be included. These latter points are contributory to but not requisite for a complete answer. These points will be included with the question in the PACAT test item pool (see HOW TO SUBMIT TEST ITEMS TO PACAT). The lists do not have to be absolutely complete, readers will have sufficient latitude to accept good answers although they do not match the author's outline.

ITEM IDENTIFICATION

Each item, whether multiple choice or essay, should be identified by content area number according to the enclosed list. Authors also are asked to provide a short (1 to 3 word) description of the topic **within** the content area to which the item applies. An optional estimate of skill level required, determined according to the following taxonomy, can be added at the discretion of the author.

BEST COPY AVAILABLE

ESTIMATING THE DIFFICULTY OF TEST ITEMS

Although the actual difficulty of an item is determined empirically after it is used, it is possible to estimate roughly the difficulty of a test item for the purpose of balanced test construction. This is done through a careful examination of the item and the cognitive skills that are required to answer it correctly. Any of several taxonomic scales can be used for classifying test items. It is important to remember, however, that the determination of the skills required to answer a question must assume that only the minimum will be used. PACAT uses a hierarchy modified from Bloom (1981). The following is a summary of the four levels most frequently associated with multiple choice items.

1. *Knowledge*
   This type of question requires the recognition and/or recall of basic facts and terms as well as specifics and details. It does not require manipulation, interpretation or analysis of the information. This is the least complex type of item.

2. *Comprehension*
   This level goes beyond recall or recognition. It represents the most basic form of understanding, requiring the ability to restate or summarize information without altering its meaning. No abstraction or problem solving is required at this level.

3. *Application*
   This level requires the application of general principles and techniques toward the solution of clearly stated problems. The problem is given or stated explicitly in the material and the examinee is required to apply the appropriate principle, techniques or theoretical approach toward a solution. The examinee is not required to produce new or innovative solutions.

4. *Analysis*
   This level requires that the examinee be able to extract the salient features from a block of information and determine their implications. A higher level of abstraction is required at this level than at the previous level in that the individual must be able to respond to implicit as well as explicit features.

The next two hierarchical levels typically are encountered only in essay items, although it is possible to construct multiple choice items that measure them.

5. *Synthesis*
   This level has been reached when the examinee's response involves the assembly of information, knowledge, and skills into a form which constitutes an explanation, plan or unique set of operations or constructs. The test item provides the necessary information for the response and specifies the task to be performed (explain, create a plan, construct a set of hypothetical relationships necessary to explain, etc.) but requires the examinee to assemble and integrate the necessary knowledge and extend it to the stated problem.

6. *Evaluation*
   This level provides the examinee with information, cases or applications which must be evaluated either in terms of criteria which are independent of the content of the information or criteria which are determined by the content. The test item provides the necessary information and specifies the type of criterion to be applied.

Classifying items on this hierarchy involves determining the highest level of cognitive achievement required. Each level contains some aspects of the levels below it, but also will require some additional manipulation of the information.

A Generalized Description of Important Steps for the Development of a Core Curriculum Assessment Program

We have found through our visits to numerous campuses and workshops the following general guidelines for the implementation of assessment programs that provide feedback for future revisions and improvements. The program outlined here will eventually provide a continuous flow of information about the curriculum and what revisions should or should not be made in order to provide the maximum instruction available to the students enrolled.

Step 1: You must ask yourself the question "What qualities should this person possess after completing this program?"

These qualities should be viewed in terms of:

- personal growth
- development as scholars in preparation for upper division study

This step should be addressed from a general perspective. We have found that the dialogue can be initiated simply by asking faculty to write a 1 paragraph description of their "ideal" student completing the general education program. These descriptions should be collated into a single statement which reflects the individual faculty opinions. The task can be addressed individually by departments participating in the core curriculum or overall.

Step 2: What guidelines have been put in place to insure that these qualities are being developed?

The guidelines should be expressed in terms of:

- Course Objectives

These are the specific objectives for the courses included in the general education core. Although the temptation is to address only the broad goals of general education, attention should also be paid to specific content. It is altogether possible that the content of the courses taken in general education is as critical to subsequent development as the broader skills such as critical thinking, writing, valuing, and so forth. The objectives ideally should be written in a manner that will permit assessment. That is, it should be possible to determine in a reasonably unambiguous manner whether or not the objective has been met. One of the best ways to begin this process is to begin with more specific objectives and, when faculty are comfortable with constructing measurable objectives at this level, proceed to the more general course goals.

> Example: ENGLISH 1, Objective 11. *Given an editorial article selected from a national news magazine, students will be able to write an accurate summary of the article, clearly identifying the central theme, arguments, degree of factual support, and soundness of conclusion(s).*
>
> Example: POLITICAL SCIENCE 1, Objective 13. *Students will be able to describe the nature of the economic relations between the United States, the European Common Market, Japan, and OPEC.*

- Curricular Objectives

Curricular objectives deal most directly with the issues raised in Step 1. For example, "Why should students be required to take the general education core?" Given that a general education core is a curriculum, then it must have specific overall goals. These are written in the same way as the course objectives above but deal with the overall goals of general education. Care should be taken not to simply extract goals from the course objectives but rather to craft a unique document that stands alone.

> Example: CRITICAL THINKING, Objective 3. *Students will be able to write summaries of written materials dealing with topics in current domestic and international affairs, the sciences, and the arts, clearly identifying the central themes, arguments, degree of factual support, and soundness of conclusions.*
>
> Example: CRITICAL THINKING, Objective 4. *Students will demonstrate their ability to comprehend the specific dialogues of the academic disciplines by being able to write summaries of written materials in a manner consistent with the discipline from which the materials are drawn.*

- Structural Objectives

The structural objectives should detail the integration of the course and curricular objectives. Given that the goals of the individual courses and of the overall core have been defined in a measurable fashion, the structural objectives detail the manner in which articulation is to be achieved and measured. The discussion at this point turns to the manner in which the various components of the core integrate with each other and contribute to the achievement of the curricular objectives of general education.

> Example: STRUCTURAL OBJECTIVE - END OF YEAR 1, Objective 3. *Prior to entry into the second level of the English and Science components of the core, students will have met Critical Thinking objectives 3 and 4.*

Step 3: Now that these guidelines are incorporated into the program, what methods can be employed to insure that these guidelines are working and can provide for further improvement in the future?

The methods employed should:

- measure the goals as defined by the faculty
- be interpretable as they directly relate to these goals
- contribute to faculty dialogue concerning the goals and possible revisions.

This is perhaps the most difficult step to take. It is also the most creative and rewarding. Steps 1 and 2 have created a detailed "environment." Now, it is time to integrate assessment into the environment. The assessment techniques should be as varied as the curriculum and circumstances permit. In all cases, however, the techniques should be identifiable with the goals and objectives that they measure. The following examples are of different techniques which can be used for this purpose.

Impact of differing entry skills and learning styles: Information on this dimension should be acquired at entry, either by accessing student records or through the administration of one or more of a variety of entry level assessment instruments designed to determine levels of self-esteem, skill, and learning style. This information can be useful in the interpretation of other measurements as well as in the assessment of personal growth and scholarly development.

Factual material acquired from core courses: The multiple choice format examination remains the fastest and most reliable method for measuring factual knowledge. The results of the test can be related directly back to the structure of the curriculum.

Integrated assessment across the curriculum: Students should be required to demonstrate retention of appropriate skills and knowledge from prior core curriculum courses. For example, class discussions, examinations (multiple choice, written, oral) and assigned papers (research, term, expository, creative) should assume that the student has met the goals of courses already taken. This level of integration also should be reflected in classroom lectures and syllabi. The existence of a clear and concise set of agreed upon objectives will greatly facilitate this process. Based upon the objectives, faculty also can differentiate performance more easily into the skills and knowledge which already have been acquired and those which are the goals of the present course.

General skills assessment (rising junior and/or graduating senior): Either a nationally available instrument like the COMP, College Base, or Academic Profile, or an internally derived instrument should be used to assess the degree to which skills acquisition and retention have taken place. It should be kept in mind, however, that some instruments like the COMP are designed for graduating seniors and may not function well as a rising junior exam. Because one of the goals of a general education curriculum is to provide a foundation for subsequent study, the lasting impact of the core should be assessed in graduating seniors. The degree to which general education is meeting its goals is best assessed as students complete the core, before skills and knowledge are acquired and/or reinforced by a large number of other courses.

Student surveys and/or interviews: A variety of excellent techniques are available for conducting satisfaction surveys and exit interviews for graduating seniors. These methods can and should be adapted for students exiting the general education program. When conducted toward the mid-point of a student's college career, these techniques can give students a strong sense of vestment in their own educational progress as well as providing valuable information about the general education curriculum.

Continuing faculty discussion: Once begun, it is imperative that the faculty dialogue concerning general education be continued. Although a great deal of time and energy is spent assessing students, we often forget to collect data/opinions/impressions from our faculty as well. If assessment is to be conducted, then clear-cut mechanisms should be in place by which to make those changes suggested by the results. Continuing faculty discussion and input appears to be an essential part of this process.

TEST CONSTRUCTION AND SCORING PROCEDURES
FOR THE
AREA CONCENTRATION ACHIEVEMENT TEST (ACAT)

WARNING: INTERNAL WORKING DOCUMENT - DO NOT DISTRIBUTE, CITE, QUOTE, OR INCLUDE IN OTHER MATERIALS WITHOUT EXPRESS PERMISSION IN WRITING FROM THE COPYRIGHT HOLDER.

COPYRIGHT 1990, 1992 by PACAT and Austin Peay State University. All rights reserved.

INTENT OF THE INSTRUMENT

The Area Concentration Achievement Test (ACAT) is a multiple-choice assessment instrument primarily designed for the evaluation of departmental curricula against a national sample of similar departments. Although individual student scores can be obtained from the ACAT, they can be used only as general guides rather than as absolute indicators of individual performance. The ACAT is intended for use with graduating senior majors.

TEST ITEMS

Test items used on the ACAT can be either 4 or 5 alternative multiple-choice type. Both 4 and 5 alternative items can be mixed within a single version of the test. Faculty contributing potential test items are asked to write them to reflect their professional estimation of what a graduating senior should know and the manner in which they should be able to demonstrate the knowledge. That is, the cognitive skill level of the graduating senior should be reflected in the item as well as the content. The degree to which this charge is met is tempered by the format of the items (ie., multiple choice) and by the skill of the author. It should be noted, however, that increasing numbers of text passage reading items are being received as well as other types of item which appear to be capable of accessing higher order cognitive skills.

Authors also are asked to classify their items according to a list of content areas developed by PACAT using national surveys and to use a 1 to 3 word phrase which denotes the general topic within the content area. These classifications are used for the determination of test construction specifications (see below).

TEST CONSTRUCTION SPECIFICATIONS

Test construction specifications are drawn initially from the curricula developed by PACAT through its national surveys. The surveys are constructed using 10 randomly selected college and university catalogs and comparing the descriptions of courses required for a major in the target discipline. Content areas appearing in at least 3 departments of the 10 are identified and included on the survey. Survey participants are asked to indicate, for each area, whether it is required, part of a list of options, or counted as an elective within their major. In addition, they are asked to indicate whether the content area is presented as a separate course, as one of several major topics within a course, or both. A write-in area is provided for the inclusion of content areas which do not appear on the instrument. Respondents are asked not to include content areas taught only in introductory level survey courses. Between October 1988 and January 1991, surveys were sent to over 10,600 academic departments in the United States, Puerto Rico, and the Virgin Islands which are listed by the College Entrance Examination Board (*Index of Majors*, 1988) as offering 4 year baccalaureate degrees with a major in Agriculture, Art, Biology, Chemistry, Communication, Criminal Justice, Geology, History, Literature in English, Mathematics, Physics, Political Science, Psychology, Public Administration, Social Work, and Sociology. To date, approximately 5,800 completed surveys have been received and processed.

The survey responses are tallied and each content area is coded according to the position it occupies within the structure of the individual major. Six categories of response are used with a seventh, "not offered," for content areas which either are unmarked or marked incorrectly. The "write-in" content areas also are grouped into categories where possible and tallied.

The coded responses are subjected to an interactive modeling process to develop initial "proto-" curricula. Where possible, the model assumes that departments will share common content area cores of varying levels of complexity with additional content areas appearing in required course clusters (students select one of several related courses) or electives. Most of the PACAT curricular models, therefore, are divided into a content area core and a list of optional content areas from which departments select a fixed number to be included.

Required core groupings are tested in decreasing order of complexity and refined until there is minimal further change in the number of departments meeting the criterion for membership. Departments requiring a minimum of 80% of the content areas in a proposed core are assigned membership in the group. The matching departments are then extracted from the overall sample and a group of optional areas is designed which best describes the content area options offered by this group of departments. An appropriate number of optional content areas is determined by simple examination of the data. For the optional areas, a department meets the criterion if it requires 80% of the minimum number of optional content areas with more than half being taught as separate courses. An example of a curriculum model developed in this manner would be the Psychology "A" curriculum. This model has a core of eight required content areas with two options selected from a group of five. This modeling process is repeated with the remaining departments until as many of them have been matched with curricular groups as possible.

Some disciplines (ie., Political Science, Literature in English) do not lend themselves to a model of a core of required content areas with an additional group of discretely identifiable options. For these disciplines, models are developed in a similar fashion but with content areas weighted according to emphasis and grouped into more general clusters.

In all cases, the curricula are intended to be used as the primary specifications for the construction of measurement instruments. The assumption is made that, while a curricular model may not fit perfectly any single department, it describes a structure in which students at different institutions will be at equal advantage with respect to the material covered.

ACATs are designed to match the curricula developed in the manner described above. The actual test items used to measure the individual content areas are selected by a stratified random sampling process. Within each content area, a profile is constructed of the "topics" indicated by the item authors. The item pools then are sampled to reflect these topical emphases up to an overall maximum number of permissible items for the content area. In this manner, the ACAT attempts to represent an overall curriculum model common to a group of departments and to reflect the professional judgment of the faculty of participating departments as to the material content and cognitive expertise appropriate to a graduating senior.

MULTIPLE PARALLEL FORMS

Two parallel forms (Forms A and D) are constructed of each ACAT. The sampling procedure is repeated a second time, excluding those items which already have been selected. The result is two independent sets of items which reflect the same content emphases. Furthermore, by using both sets of items at the same time, a greater sample can be obtained of the performance level of a student cohort. This is particularly appropriate as the ACAT is primarily intended for curricular rather than individual student evaluation. To reduce the likelihood of cheating during the examination, each form is duplicated with the alternatives randomly ordered (Forms B and E). Test booklets are serially numbered with the forms in the order A/B/D/E so that no two adjacent examinees will have the same test booklet. Possible score differences between the forms are monitored carefully using the item analyses generated during the scoring process and by statistically comparing the individual content area performance of students on the two forms.

TEST FORM VERIFICATION AND PROOFING

Test items are edited upon receipt for general form, grammar, syntax, and agreement of stem and alternatives. The editing process is designed to reduce irrelevant grammatical distractors (such as superfluous colons) and reduce the impact of transitions from one writing

BEST COPY AVAILABLE

style to another. When necessary, authors are asked to clarify an item or others familiar with the field are asked to assist in revision. Once constructed, the test forms are verified individually to insure non-duplication of items and that items do not answer each other. The test forms are read and proofed by two members of the project staff for format, numbering, and appearance.

CONTENT VALIDITY

Departments, in consultation with PACAT staff, select the curriculum pattern that they wish to use. Prior to the use of the instrument, departments are urged to review and comment on the test contents. Where potential problems are identified with test items, faculty are asked to document the particular problem and either suggest corrections or draft a substitute item. Where potential problems are found with the material content of the instrument, faculty are asked to contribute items which they perceive to be more reflective of the state of the field. PACAT assumes that the large number of readers obtained in this manner is adequate to demonstrate the content validity of its instruments.

SCORING PROCEDURES

STAGE 1

During the initial scoring stage, examinee responses are classified as correct, incorrect or blank. Correct responses are awarded 1 point while incorrect responses result in a .25 point penalty. The penalty has been necessitated by widely varying degrees of student cooperation and motivation with regard to this type of assessment process. Point-biserial correlation coefficients are constructed between individual item performance (correct/not correct) and total performance on the remaining items in the content area.

STAGE 2

During this stage, a series of item weights are developed which are based jointly upon the point-biserial correlations and the item difficulty index (percent correct). The criteria for these weights are described below.

POINTS	SIGN	PROB	% CORRECT
0.0	(+)	<.01	0 - 9
2.0	(+)	<.01	10 - 50
1.5	(+)	<.01	50 - 90
0.5	(+)	<.01	90 - 100
0.0			0 - 25
1.0			25 - 90
0.5			90 - 100
0.0	(-)	<.01	0 - 100

The item weights are reflective both of internal consistency and difficulty and are primarily intended to stabilize normative scores on tests during the early phases of their development. The criteria were developed during 1983-85 as a result of a number of simulations conducted using data collected using the original Psychology ACAT. The average item weight for those items currently in use ranges between 1.2 and 1.6.

Correct responses are awarded the appropriate number of points for the item. A percent correct score is then calculated using the total number of points available for the content area. Items which are weighted with 0.0 points count neither in the score nor in the points available. No penalty is awarded for incorrect responses on these items.

STAGE 3

In the final scoring stage, the percent correct scores are translated into standard scores with a mean of 500 and a standard deviation of 100. Separate normative data are maintained for each content area as well as overall test performance, permitting each content area component to be treated as though it were a separate examination. Standard scores for the content areas and for overall performance also are calculated independently. This becomes increasingly important as the number of items on the instrument may differ by content area. By calculating the overall performance score independently, it can reflect the relative content emphasis of the test. The normative values consist of the cumulative percent correct scores for the preceding 4 year period. Each year, the earliest year's normative data are removed as another is added. This is done in order to accommodate gradual changes in performance resulting from curricular modification and improvement. In addition, individual normative groups consisting of all prior examinees in the discipline at a given institution are used to construct change scores for the individual department. These change scores are expressed only as .25 sd units.

SCORE REPORTS

Score reports are provided to participating departments following each of four annual testing cycles, with the final report being cumulative for the year. The types of information contained in the reports are selected by each department according to its needs. The information which is available consists of:

- Overall departmental standard scores, percentiles, and cumulative sample sizes for each content area/content area cluster as well as for overall performance
- Overall departmental average percent correct raw scores and standard deviations for each content area/content area cluster as well as for overall performance
- Graphic presentation of distribution of departmental student performance scores in stanines compared to the overall group for the current testing year
- Departmental change scores (described above) for each content area/content area cluster as well as for overall performance
- Frequencies of examinee self-reports of classroom contact with content areas and point-biserial correlations and probabilities for reportedly taking a course dealing with the content area and performance on the corresponding portion of the ACAT
- Frequencies of examinee self-reported GPA overall and in the major (by range in 0.5 point increments from 1.5 to 4.0) and product-moment correlations and probabilities for each type of GPA with the individual content areas and overall performance on the ACAT
- Frequencies with which students report transferring credits in the major from other institutions
- Frequencies with which students report planning to pursue graduate studies
- Individual student standard scores (listed alphabetically by last name or numerically by social security number) for each content area/content area cluster as well as for overall performance
- Individual student scores in stanines (listed alphabetically by last name or numerically by social security number) for each content area/content area cluster as well as for overall performance

Each section of the score report carries with it a brief explanation of the type of information that it contains. Warnings concerning the limitations of the scores and their applications also are included. PACAT willingly provides consultation, in writing or by telephone, concerning the scores, score reports, and potential uses of the data.

REVISIONS OF THE INSTRUMENT

The ACATs periodically are revised with a typical cycle of 2 years depending upon the availability of new items. Items to be used for revisions typically are field tested as an unscored portion of the instrument for 1 year in order to determine whether or not they are appropriate for use. Appropriateness is determined in part by the weight assigned to the item. Items with weights between 1.0 and 2.0 are considered appropriate. Items are replaced if they fall into the 0.0 weighting category. Other items may be replaced in order to maintain the currency of the instrument. Items dealing with equivalent material may be exchanged across forms in order to balance the number of weighted points available.

RESEARCH RESULTS

To date, six research studies using the Psychology ACAT have been completed and either published or presented at professional meetings. A dissertation also has been conducted using the Social Work ACAT. All but one of these studies has been conducted independently of PACAT. The results of these studies conclude that the ACAT is at a difficulty level appropriate for graduating seniors (freshman/sophomores score at the 7th to 11th %'ile, graduating seniors at the 50th %'ile, first year graduate students at the 60th to 78th %'ile, and holders of the doctorate at the 92nd to 99th %'ile) and that it is sensitive to both curricular strengths and weaknesses as perceived independently by department faculty. A list of extramural research projects using the ACAT appears below.

Dr. William Chaplin
Department of Psychology
University of Alabama
Tuscaloosa, AL 35487-0348
(205)348-1926
(Validity Data - Psychology)

Dr. Al Cone, Chair
Department of Psychology
Jamestown College - Box 6019
Jamestown, ND 58401
(701)252-3467 EXT. 2604
(Research Data - Psychology)

Ms Michelle Crain
Department of Psychology
Memphis State University
Memphis, TN 38152
(Thesis - Validity Data - Psychology)

Dr. Elaine Ferraro
Social Work Program
Columbia College
Columbia, SC 29303
(803)786-3635
(Dissertation using Social Work ACAT)

Dr. Michael Smith
Department of Psychology
University of Tennessee
Knoxville, TN 37996
(615)974-6846
(Validity Data - Psychology)

PUBLICATIONS/OTHER MATERIALS

Cone, A. (1988). Low tech/high touch criterion-based learning. *Psychological Reports, 63,* 203-207.

Cone, A. (1990). Frequency of testing in criterion-based learning. *Psychological Reports, 67,* 396-398.

Golden, A. (1991). PACAT: A national project in cooperative major field assessment. In R. McCormick (Ed.), *The 1990 Montclair assessment conference: Strategies and prospects for the decade* (pp. 80-83). Upper Montclair, NJ: Montclair State College.

Golden, A. (1989). Project for Area Concentration Achievement Testing. Washington, DC: AASCU/ERIC Model Programs Inventory Project. (ERIC Document Reproduction Service No. ED 306 863).

Golden, A. (1986). An approach to "In-House" test development for major field assessment. In K. McGuinness (Ed.), *Legislative action & assessment: Reason & reality* (pp. 167-176). Washington, DC: American Association of State Colleges and Universities. (ERIC Document Reproduction Service No. ED 293 387).

Golden, A., Smith, M., Cone, A., and Kidda, M. (1991, June). *The Area Concentration Achievement Test (ACAT): Different strategies for assessing the psychology major.* Panel presentation at the Sixth AAHE Conference on Assessment in Higher Education. San Francisco, CA. Tapes available from Mobiltape Company, Inc., 25061 W. Ave. Stanford, Suite 70, Valencia CA 91355 (Tape #91NCAHE-99).

Golden, A. and Squire, D. (1991). The third alternative. *Assessment Update, 3 (2),* 10-11.

APPENDIX VIII: Sample Score Report

ACAT

Score Report

Sample Score Report
LITERATURE IN ENGLISH

Test Year: 1990-91 Cycle: 4 Report Prepared: 10-MAY-91

STANDARD SCORES FOR THIS DEPARTMENT COMPARED TO THE OVERALL NORM GROUP

Raw scores are converted to standard scores for the purpose of interpretation. Standard scores enable raw scores to be compared, both within areas of the same test and between different tests. The mean and standard deviations are arbitrarily set. The most common scale used is with a mean of 500 and a standard deviation of 100. The standard scores reported below use this scale. These overall standard scores are based on a comparison of this year's scores with a 4 year cumulative norm group for each content area and for overall performance.

AREA TESTED	STANDARD SCORE	%'ILE	NORM GROUP SIZE
American to 1865	532	62	37
American Modern (1860's to pre	575	77	37
British Medieval Period	538	64	37
British Renaissance	442	29	37
British Romantic	569	75	37
British Victorian	419	22	37
Shakespeare	589	81	37
Linguistics	455	33	37
Restoration/18th Cent./PreRoma	563	73	43
OVERALL SCORE	476	41	37
NUMBER OF EXAMINEES AT THIS INSTITUTION:			10

RAW SCORE SUMMARY FOR THIS DEPARTMENT ONLY

Listed below are your average percent correct scores for each content area and for overall performance. The standard deviations indicate the degree of variability in your students' raw scores.

AREA TESTED	MEAN % CORRECT	STANDARD DEVIATION
American to 1865	56	22
American Modern (1860's to pre	53	21
British Medieval Period	61	28
British Renaissance	42	18
British Romantic	58	17
British Victorian	13	13
Shakespeare	61	17
Linguistics	37	10
Restoration/18th Cent./PreRoma	70	20
OVERALL SCORE	40	12

BEST COPY AVAILABLE

CHANGE SCORES COMPARING CURRENT SCORES TO THIS DEPARTMENT'S PRIOR PERFORMANCE

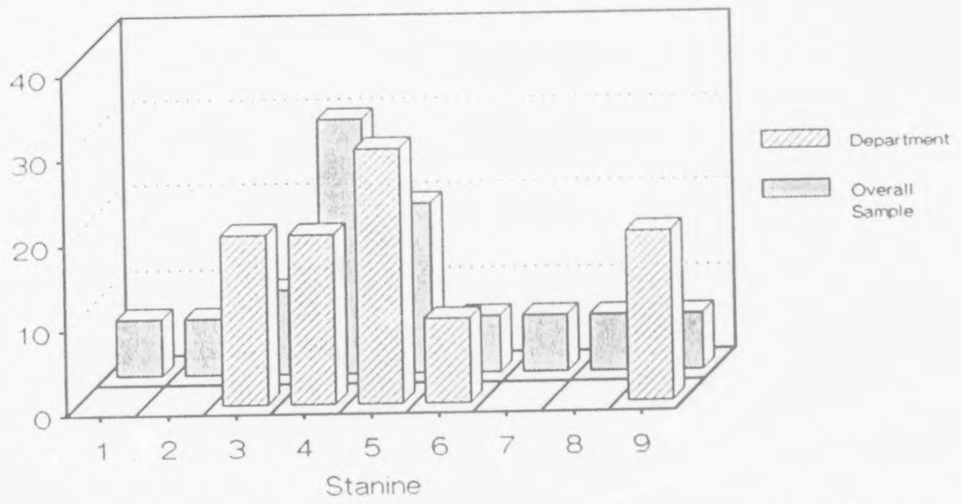
The change scores listed below are calculated using only the performance of students in your department accumulated across all prior administrations. The change scores are reported in increments of .25 standard deviations to reflect changes of less than one full standard deviation. Interpretation of these scores should be made cautiously. Changes of less than .5 standard deviations may not be highly meaningful. Negative values indicate declines in performance. Although based on the same performance as the standard scores reported above, the two types of score are not directly comparable.

AREA TESTED	CHANGE SCORE
American to 1865	-0.25
American Modern (1860's to pre	0.75
British Medieval Period	0.25
British Renaissance	-1.25
British Romantic	0.75
British Victorian	0.00
Shakespeare	0.00
Linguistics	-0.75
Restoration/18th Cent./PreRoma	1.25
OVERALL SCORE	0.75

Prior examination years included in comparison: 1
Prior examinees included in comparison: 7

COMPARISON OF STANINE DISTRIBUTION FOR THIS DEPARTMENT AND OVERALL GROUP DISTRIBUTION FOR THIS TESTING YEAR

For the following distributions, standardized overall scores have been converted into stanines. Stanines are used as general indicators of performance where large measurement errors are possible or where placing individual performance within percentile bands is more meaningful than using specific standard scores and percentiles. The upper percentile limits included in each stanine are as follows: (1) 4.0; (2) 11.0; (3) 23.0; (4) 40.0; (5) 60.0; (6) 77.0; (7) 89.0; (8) 96.0; (9) 100.0.



RELATIONSHIP OF CONTENT AREAS TAKEN BY EXAMINEES TO CONTENT AREA SCORES

This table indicates the frequency with which your students reported taking one or more courses in each content area in your department; the percent that this number represents of your overall group; and the calculated relationship (point-biserial correlation) between studying the area in your department and performance on the corresponding component of the ACAT. Significant positive relationships suggest that taking one or more courses which cover this content area is associated with higher scores on the corresponding portion of this test. Significant negative relationships suggest the opposite.

COURSE CONTENT AREA	FREQUENCY TAKEN	PERCENT TAKEN	CORRELATION WITH CONTENT AREA SCORE
British Medieval Period	8	80	-0.816
British Renaissance	2	20	0.054
Shakespeare	10	100	
Restoration/18th Cent./PreRoma	6	60	0.402
British Romantic	4	40	0.313
British Victorian	0	0	
American to 1865 (7-024)	3	30	-0.292
American Modern (1860's to pre	8	80	0.346
Linguistics	10	100	

* Indicates a statistically significant relationship. That is, a relationship of this strength is likely to happen by chance fewer than 5 times in 100.

SELF-REPORTED CHARACTERISTICS OF EXAMINEE GROUP

Examinees are asked to provide several types of personal information at the time of administration. The following table summarizes some of this information.

GPA	OVERALL	MAJOR	OTHER INFORMATION	
1.5 - 2.0	0	0	Number of Transfer Students:	0
2.1 - 2.5	6	4	Planning Graduate Studies:	10
2.6 - 3.0	0	2		
3.1 - 3.5	0	0	Female Examinees:	8
3.6 - 4.0	2	8	Male Examinees:	2

Note: Some examinees do not respond on all items, producing different totals.

RELATIONSHIP BETWEEN CONTENT AREA SCORES AND SELF-REPORTED GPA

This table indicates the relationship (Pearson's r) between the examinees' self-reported GPA and performance on the ACAT. Significant positive relationships suggest that higher GPAs are associated with higher scores on the corresponding portion of this test. Significant negative relationships suggest the opposite.

AREA TESTED	CORRELATION WITH OVERALL GPA	MAJOR GPA
American to 1865	0.509	0.784
American Modern (1860's to pre	-0.100	0.460
British Medieval Period	-0.107	0.313
British Renaissance	0.366	0.417
British Romantic	-0.687	-0.978 *
British Victorian	-0.262	-0.331
Shakespeare	0.084	0.043
Linguistics	0.533	0.406
Restoration/18th Cent./PreRoma	-0.557	-0.247
OVERALL SCORE	0.410	0.406

* Indicates a statistically significant relationship. That is, a relationship of this strength is likely to happen by chance fewer than 5 times in 100.

INDIVIDUAL EXAMINEE STANDARD SCORES
(LISTED ALPHABETICALLY BY LAST NAME)

The scores which appear below should be interpreted with due caution. The ACAT is designed to evaluate overall performance of a student cohort. The meaningfulness of scores for individual examinees therefore is limited.

EXAMINEE NAME			SOCIAL SECURITY	CONTENT AREA SCORES:									TOTAL SCORE	%'ILE
				1	2	3	4	5	6	7	8	9		
ALUCARD	WILLIAM	X	111220004	489	401	367	368	454	414	390	516	456	385	13
ARNELL	ARLETTE		111220008	673	538	536	418	558	550	485	594	581	552	69
FRANCIS	JANE		111220003	412	414	397	547	482	373	469	408	527	413	20
JOHNS	CAROLYN	M	111220012	614	501	438	487	416	441	524	491	402	514	55
JONES	ANTHONY	J	111220001	661	588	638	726	709	550	575	547	634	704	98
SAMONER	KELLY	A	111220007	548	662	618	726	567	427	591	558	598	500	50
STOKER	BRAM		111220002	459	501	372	517	473	427	591	558	598	500	50
TUSLE	JAMES		111220010	708	708	590	719	707	621	473	575	754	765	99
UNDERMAN	PHILIP	A	111220006	501	488	541	537	492	455	524	413	429	461	36
WILAGREN	PHYLLIS	Z	111220005	644	588	392	418	425	468	357	480	393	439	28

CONTENT AREAS TESTED FOR THIS GROUP (LISTED IN THE ORDER IN WHICH THEY APPEAR ABOVE):

1 - American to 1865
2 - American Modern (1860's to pre
3 - British Medieval Period
4 - British Renaissance
5 - British Romantic
6 - British Victorian
7 - Shakespeare
8 - Linguistics
9 - Restoration/18th Cent./PreRoma

INDIVIDUAL EXAMINEE STANDARD SCORES
(LISTED NUMERICALLY BY SOCIAL SECURITY NUMBER)

The scores which appear below should be interpreted with due caution. The ACAT is designed to evaluate overall performance of a student cohort. The meaningfulness of scores for individual examinees therefore is limited.

SOCIAL SECURITY	CONTENT AREA SCORES: 1	2	3	4	5	6	7	8	9	TOTAL SCORE	%'ILE
111220001	661	588	638	726	709	550	575	547	634	704	98
111220002	459	501	372	517	473	427	591	558	598	500	50
111220003	412	414	397	547	482	373	469	408	527	413	20
111220004	489	401	367	368	454	414	390	516	456	385	13
111220005	644	588	392	418	425	468	357	480	393	439	28
111220006	501	488	541	537	492	455	524	413	429	461	36
111220007	548	662	618	726	567	427	591	558	598	500	50
111220008	673	538	536	418	558	550	485	594	581	552	69
111220010	708	708	590	719	707	621	473	575	754	765	99
111220012	614	501	438	487	416	441	524	491	402	514	55

CONTENT AREAS TESTED FOR THIS GROUP (LISTED IN THE ORDER IN WHICH THEY APPEAR ABOVE):

1 - American to 1865
2 - American Modern (1860's to pre
3 - British Medieval Period
4 - British Renaissance
5 - British Romantic
6 - British Victorian
7 - Shakespeare
8 - Linguistics
9 - Restoration/18th Cent./PreRoma

INDIVIDUAL PERFORMANCE IN STANINES
(LISTED ALPHABETICALLY BY LAST NAME)

The scores which appear below should be interpreted with due caution. The ACAT is designed to evaluate overall performance of a student cohort. The meaningfulness of scores for individual examinees therefore is limited. Stanines are used as general indicators of performance where large measurement errors are possible or where placing individual performance within percentile bands is more meaningful than using specific standard scores and percentiles. The upper percentile limits included in each stanine are as follows: (1) 4.0; (2) 11.0; (3) 23.0; (4) 40.0; (5) 60.0; (6) 77.0; (7) 89.0; (8) 96.0; (9) 100.0.

EXAMINEE NAME			SOCIAL SECURITY	CONTENT AREA SCORES: 1	2	3	4	5	6	7	8	9	TOTAL SCORE
ALUCARD	WILLIAM	X	111220004	5	3	2	2	4	3	3	5	4	3
ARNELL	ARLETTE		111220008	8	6	6	3	6	6	5	7	7	6
FRANCIS	JANE		111220003	3	3	3	6	5	3	4	3	6	3
JOHNS	CAROLYN	M	111220012	7	5	4	5	3	4	5	5	3	5
JONES	ANTHONY	J	111220001	8	7	8	9	9	6	6	6	8	9
SAMONER	KELLY	A	111220007	6	8	7	9	6	4	7	6	7	5
STOKER	BRAM		111220002	4	5	2	5	4	4	7	6	7	5
TUSLE	JAMES		111220011	9	9	7	9	9	7	5	6	9	9
UNDERMAN	PHILIP	A	111220006	5	5	6	6	5	4	5	3	4	4
WILAGREN	PHYLLIS	Z	111220005	8	7	3	3	4	4	2	5	3	4

CONTENT AREAS TESTED FOR THIS GROUP (LISTED IN THE ORDER IN WHICH THEY APPEAR ABOVE):

1 - American to 1865
2 - American Modern (1860's to pre
3 - British Medieval Period
4 - British Renaissance
5 - British Romantic
6 - British Victorian
7 - Shakespeare
8 - Linguistics
9 - Restoration/18th Cent./PreRoma

INDIVIDUAL PERFORMANCE IN STANINES
(LISTED NUMERICALLY BY SOCIAL SECURITY NUMBER)

The scores which appear below should be interpreted with due caution. The ACAT is designed to evaluate overall performance of a student cohort. The meaningfulness of scores for individual examinees therefore is limited. Stanines are used as general indicators of performance where large measurement errors are possible or where placing individual performance within percentile bands is more meaningful than using specific standard scores and percentiles. The upper percentile limits included in each stanine are as follows: (1) 4.0; (2) 11.0; (3) 23.0; (4) 40.0; (5) 60.0; (6) 77.0; (7) 89.0; (8) 96.0; (9) 100.0.

SOCIAL SECURITY	CONTENT AREA SCORES: 1	2	3	4	5	6	7	8	9	TOTAL SCORE
111220001	8	7	8	9	9	6	6	6	8	9
111220002	4	5	2	5	4	4	7	6	7	5
111220003	3	3	3	6	5	3	4	3	6	3
111220004	5	3	2	2	4	3	3	5	4	3
111220005	8	7	3	3	4	4	2	5	3	4
111220006	5	5	6	6	5	4	5	3	4	4
111220007	6	8	7	9	6	4	7	6	7	5
111220008	8	6	6	3	6	6	5	7	7	6
111220011	9	9	7	9	9	7	5	6	9	9
111220012	7	5	4	5	3	4	5	5	3	5

CONTENT AREAS TESTED FOR THIS GROUP (LISTED IN THE ORDER IN WHICH THEY APPEAR ABOVE):

1 - American to 1865
2 - American Modern (1860's to pre
3 - British Medieval Period
4 - British Renaissance
5 - British Romantic
6 - British Victorian
7 - Shakespeare
8 - Linguistics
9 - Restoration/18th Cent./PreRoma

APPENDIX IX: Reports of Consultants and Other Comments

BEST COPY AVAILABLE

AN EXTERNAL EVALUATION OF THE U.S.D.E. FIPSE-SUPPORTED PROGRAM FOR AREA CONCENTRATION ACHIEVEMENT TESTING (PACAT)

by Reid Johnson, Ph.D.
Coordinator, SCHEA Network and
Professor of Psychology
Winthrop College, S.C.
August, 1990

Introduction

This evaluation was undertaken at the request of the PACAT project director, Dr. Anthony Golden, to provide a consultative assessment and recommendations from an "outside" perspective. Subsequent statements toward those ends are based on the following: a review of the original FIPSE grant proposal, year 1 and 2 progress reports and continuation proposals; three PACAT-based professional papers; a one-day site visit to Austin Peay University, including direct interviews with PACAT staff members Dr. Golden and Denise Squire, and four institutional officials; telephone interviews with four project participants and consumers of PACAT services; plus various other presentations and materials encountered over the past three years.

PACAT Project Objectives

As originally proposed in March, 1988, The PACAT project involved three primary goal activities. Progress toward each over the first two years will be summarized and evaluated in turn.

Goal 1: PACAT planned to conduct a two-phase survey of 500 departments - based on a 25% expected return from 2000 mailouts -

in 24 disciplines in 14 states to determine curriculum requirement patterns for majors. Multiple-choice test items suitable for assessing graduating seniors' knowledge base in those major programs would then be elicited.

Evaluation: Although these were considered ambitious objectives, the numerical criteria have been significantly exceeded. As of this date, project staff report that approximately 10,128 mailouts have produced over 4,800 returns, from all 50 states, D.C. and two territories, in 13 disciplinary majors. This accomplishment is highly meritorious in and of itself, and provides an extraordinarily comprehensive information base for the project's subsequent assessment objectives.

Goal 2: PACAT proposed to utilize the major curriculum patterns and test items from Goal 1 to construct achievement tests (ACATs) appropriate for outcomes assessment of exiting seniors in those majors as an important indicator of the major programs' effectiveness. Such ACATs were intended to provide distinct advantages for program evaluation purposes over the other two traditional testing options in that (1) ACATs were to offer more internal validity than nationally standardized commercial tests since the content would be more individualized to the curricular emphasis of each local program, and (2) ACATs also were to offer more external validity than locally developed tests since comparitive norms would be developed among programs with similar curricular patterns, and even national norms might be possible. Furthermore, ACATs would analyze test items by difficulty level to help determine students' cognitive skill level (based on Bloom's taxonomy) needed for each item. It was projected that by the end of project year 2 several thousand ACATs in 5 majors would have been constructed and disseminated.

Evaluation: As of this date, 3,000 ACATs have been constructed in only 3 majors (psychology, social work, and political science) with two others (English literature and biology) well underway. While these numbers fall well short of anticipated project goals, three mitigating considerations are evident. First, even these lower levels of test construction represent a very substantial accomplishment. Second, the numerical criteria were probably too ambitious from the outset. While those criteria were derived from empirical projections based on similar activities in 1983-88 within a smaller group of Tennessee colleges, the 1988-90 expansion produced workload progressions that were more geometric than arithmetic. Thus, even higher work rates resulted in lower production rates. Last, the main reason for shortages in Goal 2 projections were the overwhelmingly high demands for Goal 1 activities. ACAT production objectives were delayed due to the need to analyze and organize the prerequisite survey and item submissions on which the tests must be based. Since this is unquestionably a strong indication of the need for PACAT's processes and products, the actual Goal 2 achievement levels are not only acceptable, they're commendable!

Goal 3: PACAT proposed to provide a scoring and reporting service for ACAT consumers. Based on a graduated temporal scale ranging from $0-$10 per test over four years of use, PACAT would machine score test answer sheets and provide a very comprehensive array of descriptive statistical summaries of results, at both the program and individual student levels. Income and report projections for the three FIPSE-supported years anticipated significant ACAT participant revenues to begin in year 2, and increase dramatically with increased reporting in year three. At this rate, the PACAT project was expected to become self-supporting in four years.

Evaluation: As with Goal 2, the quantitative criteria for Goal 3 have not been met, for qualitatively important reasons. The "domino effect" of analyzing far more surveys than expected and organizing far more major curriculum patterns than expected and refining far more test items than expected and constructing far more tests than expected, has produced a much slower ACAT administration and revenue production cycle than expected. The PACAT staff had a choice: maintain high standards for all participants in Goals 1 and 2, or meet productivity quotas in Goals 2 and 3. Clearly, they have chosen the best and most conscientious alternative for their participants, but at the cost of fewer end products and concommitantly lower income than originally planned. Ironically, PACAT's outstanding successes in Goals 1 and 2 have resulted in major problems in Goal 3, and thus potentially critical financial shortfalls for post-FIPSE continuation, especially in 1991-93.

Summary Evaluation of PACAT Activities

Strengths and Assets

- Clearly, PACAT activities have demonstrated a great need for ACAT products and services among a wide range of higher education programs throughout the country.

- The PACAT products and services developed thus far - including surveys, computer programs, tests, results analyses, reports, etc. - are first rate; as good or better than the much more costly alternatives nationally prominent publishing companies provide.

- The PACAT staff is very diligent, productive, creative, flexible, and easy to work with. Dr. Golden is frequently singled out for praise in all these areas by participants, colleagues, administrators and PACAT staffers alike.

- The major curriculum patterns and multiple-choice item banks constitute very important resources for facilitating assessment in the respective disciplines.

- The ACAT multiple-choice item bank is a widely used, standard component of most major assessments - particularly useful for external validity comparisons - and therefore likely to be in high demand for the foreseeable future.

- In my opinion, ACAT revenue production over the long run will meet or exceed original projections for self-sufficiency or even profitability.

Weaknesses and Problem Areas

- Given the level of responses to PACAT surveys, the scope of the original project is unrealistic. Completion of ACATs for 24 disciplines is well out of reach, and ACAT production for even the thirteen majors presently at some stage of process will likely take at least two to three more years with present resources (i.e., four or five years total, rather than the expected three). The revised test production goal of nine by 1991 is much more feasible.
- Present staff-time is stretched thin, and Dr. Golden's PACAT time demands are particularly unreasonable. Although equipment needs appear to be adequately met, space and facility needs are also not satisfactory.
- Given the project's resource limitations, the funding discontinuation by FIPSE in 1991, and the very high demand for early- and mid-phase PACAT services by participants, the project can be expected to run low on funds before its goals are completed.
- PACAT's "local support base" at Austin Peay - and to some extent in Tennessee - could be stronger. Partially due to workload and perhaps partially due also to administrative style, the PACAT project has operated largely in isolation. By that I mean that peer colleagues and administrative superiors - while

generally very positive regarding PACAT's work - do not feel affiliated, involved or responsible for its continuation. While understandable, this lack of supporting relationships with other departments and offices could prove a real liability in the near future.

- As an assessor, I feel the need to also point out the measurement limitations of the "objective" multiple-choice item bank which constitutes the bulk of PACAT's services. For either program evaluation or individual student assessment purposes, this type of item will always be more superficial and have potentially greater internal validity problems than some other methods. Therefore, multiple-choice achievement testing at its best should only be used as one component in a multi-method approach to assessing majors (as PACAT technical materials acknowledge).

Recommendations

The most critical need for the PACAT project is funding for continued operation for one to two years beyond cessation of FIPSE support, or until the project can become self-sustaining. Toward that end PACAT project staff should begin planning for 1991-93 funding during the 1990-91 project year, and consider the following strategies:

1. Reduce the range of disciplines for which ACATs will be developed by 1993. Continued efforts to elicit new

BEST COPY AVAILABLE

disciplines for early phase activities, while desirable in the long run, create insurmountable cost and work loads in the short run.

2. Concentrate ACAT cycle-completion activities on disciplines which offer the most promise for relatively quick revenue production, i.e., majors with the highest enrollments and/or most promise for high percentage department participation (e.g. psychology, biology, English literature, mass communication, social work, political science, etc.)
3. Increase PACAT prestige (and therefore credibility) by seeking endorsements, approvals, or other formal and informal legitimizations from sanctioning agencies and other authorities (e.g. SACS, THEC, FIPSE, disciplinary learned societies and professional associations, etc.)
4. Increase PACAT utility and "user friendliness" by producing and disseminating a new "sales/PR" brochure. (The present promotional materials are very good, but may be too lengthy, technically sophisticated, and "assessment wise" for the large majority of higher educators - especially those without direct training and experience in measurement theory, statistics, program evaluation and other vital aspects of higher education assessment - which means *most* potential PACAT participants). The proposed brochure should be short, preferably

one to two pages back and front. It should emphasize both the accountability and program improvement potential of PACAT, stress the internal and external validity advantages, give examples of appropriate common uses for ACATs, cite specific state and accreditor mandates ACATs can serve, and include testimonials from recognized experts and satisfied consumers. (This information should be useful to current and prospective participants alike.)

5. FIPSE offers $8,000 in "dissemination" grants for fourth year project activities, and these funds should be sought and utilized for presentations, publications and other similar activities to expand PACAT's participant and income base for the future. The PACAT staff's idea for a national conference on assessment of the major is an excellent one, potentially providing opportunities for participant recruitment, revenue production, and broader benefits from the project in one package. Perhaps the FIPSE funds could be used as seed money for such a conference.

6. Likewise, other grant support should be sought from state, federal and/or private foundation sources. Possible targets might include Austin Peay, Tennessee and Federal Department of Education research and/or development grants.

7. Should only partial funding support be obtained for 1991-93, consideration should be given to a "division of labor" collaborative effort with other assessment centers who might be able to share production work and costs. Should acute funding shortages be faced, commercial publishers might "buy" PACAT products and procedures. This project has invested too much effort and produced too much good work to see it discontinued.

In addition to continuation funding concerns, the following suggestions are also offered to improve PACAT operations, services and products:

8. Based primarily on interview results, it is strongly recommended that concerted efforts be initiated or renewed to increase PACAT's profile and participation at Austin Peay and among other Tennessee colleges and universities. This is emphasized not only for the potential revenue production, but primarily to constitute a core base of ACAT "models" to significantly broaden PACAT's impact as a program evaluation and effectiveness enhancement strategy. This effort should utilize Dr. Golden's considerable personal good will to establish PACAT's value on educational, professional and colleagial levels. (I got the definite impression that key Austin Peay faculty, administrators, and other potential consumers and benefactors needed to

feel more affiliated with the PACAT project before they could become strong supporters. I know this suggestion exacerbates an avoidance-avoidance conflict by further threatening Dr. Golden's teaching and PACAT operations priorities, but I would hate to see this project become "the best FIPSE project to ever fall short due to lack of PR", which I believe is a possibility without preemptive steps.)

9. Along with some supplementing or revision of the participant "input" materials (Rec. #4), I would like to see some modification of the ACAT results report. Consistent with the earlier cited "user friendliness", I'm concerned that recipients may well be overwhelmed with the breadth of descriptive statistics provided, yet fail to appreciate their potential depth of utility. Rather than - or in addition to - multiple tables of norm-referenced scores, an "interpretation guide" is needed expanding the current comments on the meaning of the results and placing them in a program evaluation context, in language that could be understood by assessment novices and veterans alike.

10. It is also strongly recommended that PACAT continue to explore "item banking" and other technical assistance services for test options

other than multiple-choice questions (such as essay or short-answer items). This would not only bring PACAT's considerable expertise to bear on a potentially more valid assessment tool, but significantly increase PACAT's apparent value to participants as well. (Again, I know that additional time-intensive ideas are problematic, but from both a service and marketing viewpoint I thought it warranted mentioning.)

Summary Evaluation and Conclusions

In summary, my evaluation indicates that PACAT is a very important project providing valuable services to a very large constituency in a highly professional, productive, and accountable manner. What it lacks in physical and financial resources it makes up for in an unusually creative, conscientious and flexible staff, all spearheaded by the dedicated and enlightened leadership of Dr. Golden. With concerted efforts in the coming year to increase the utility of ACAT products, build a broader and stronger colleagial and administrative support base, and secure supplementary funding for 1991-93 activities, PACAT's considerable promise should be realized or exceeded. Speaking as a higher educator, an assessor, and a taxpayer, I'm extremely pleased with FIPSE's expenditure of funds on a a project as worthy and important as this one.

Ph.D.
12 September 1990

AN EVALUATION OF THE PROGRAM FOR AREA CONCENTRATION ACHIEVEMENT TESTING

Gary R. Pike
Associate Director
Center for Assessment Research & Development

University of Tennessee, Knoxville
1819 Andy Holt Avenue
Knoxville, Tennessee 37996-4350

BEST COPY AVAILABLE

AN EVALUATION OF THE PROGRAM FOR AREA CONCENTRATION ACHIEVEMENT TESTING

INTRODUCTION

During 1990, I was retained by the Program for Area Concentration Achievement Testing (PACAT) at Austin Peay State University (APSU) to act as an external evaluator. Prior to being asked to serve as an evaluator, I had several opportunities to meet with Dr. Anthony J. Golden, Project Director, and was familiar with the program. In addition, as Associate Director of the Center for Assessment Research and Development at the University of Tennessee, Knoxville (UTK) I am responsible for helping to prepare performance funding reports for the Tennessee Higher Education Commission, and I am well aware of the operation of performance funding in Tennessee.

On September 21, 1990 I had an opportunity to visit Austin Peay State University to meet with the PACAT staff. I also had an opportunity to talk with Dr. Linda Rudolph (Assistant Vice President for Planning and Institutional Effectiveness), Dr. John Butler (Vice President for Academic Affairs), Dr. Carlton Stedman (Dean of the College of Education), and Dr. Stuart Bonnington (Chair of the Psychology Department) about the current role of the PACAT program at Austin Peay and its future.

Given my background, I was asked to focus my evaluation of PACAT on its role in Tennessee and APSU, as well as its future after FIPSE support is no longer available. This evaluation does not consider questions related to the psychometric properties of the Area Concentration Achievement Tests or on PACAT's role outside of Tennessee except in the most general way. Having read Dr. Reid Johnson's review of PACAT's operations, and being in agreement with his conclusions and recommendations, I have chosen not to repeat the points Dr. Johnson made. To better understand my comments regarding the role of the PACAT in Tennessee and at APSU, however, it is helpful to briefly review the history and purpose of PACAT.

BACKGROUND AND PURPOSE

The Program for Area Concentration Achievement Testing began in 1983 as a consortium of Psychology departments. Headed by Dr. Anthony Golden, the goal of the consortium was to develop an outcomes measure in Psychology. By 1988, the consortium had expanded to include departments in Social Work and Political Science.

Having received support from the Fund for the Improvement of Postsecondary Education (FIPSE) in 1988, PACAT currently serves 37 academic departments at 27 institutions in 11 states. Starting with instruments in Psychology, Social Work, and Political Science, PACAT has expanded to include the development of outcomes measures for Literature, Art, Communication, Physical Education, and Biology.

PACAT measures provide a bridge between nationally-administered exams and locally-developed tests. Nationally-administered tests provide users with the advantages of high-quality measures and comparative data on student and/or program performance. However, these advantages are achieved at the cost of what is frequently a poor match between test content and the curriculum of a given department. In addition, reliance on nationally-developed tests may make it extremely difficult to identify differences in student performance that are the products of differences in ability (or other pre-college characteristics) and program effects. One very real danger of too great a reliance on the scores from these tests is that assessment with result in "teaching to the test," rather than improvement to aid the learner.

Because locally-developed tests can be tailored to a program's curriculum, these tests represent a much better match between test content and program characteristics. This match also makes it easier to partition test performance into that which is the product of students' educational experiences and that which is beyond the influence of higher education. Unfortunately, these gains are frequently achieved at the costs of questionable test validity and the absence of comparative data for program evaluation.

PACAT overcomes the limitations of both nationally-standardized and locally-developed tests by: (1) identifying content areas within academic disciplines; (2) creating item pools for the common content areas, and (3) using the item pools to create a range of content area measures within disciplines from which institutions may select. Consequently, PACAT provides the flexibility and adaptability of locally-developed outcomes measures, while providing opportunities for the validation of outcome measures and for the use of comparative data about program performance at other institutions.

This advantage of the Area Concentration Achievement Testing program can be clearly seen in the results of a recent study at the University of Tennessee, Knoxville (UTK) comparing the PACAT Psychology exam with the Major Field Achievement Test (MFAT) in Psychology which was developed by the Educational Testing Service (ETS). In this study, Psychology faculty and students at UTK rated the PACAT Psychology exam much higher than the Major Field Achievement Test in terms of its coverage of the department's curriculum, while noting that item quality is quite good for both exams.

A second important advantage of the PACAT exams is that the test-development process can provide a useful vehicle for faculty involvement in assessment. This faculty involvement is absolutely essential if assessment findings are to result in learner-centered improvements in postsecondary education.

By involving faculty in the item-writing process, PACAT stimulates a department's faculty to examine their curriculum and to identify the goals, objectives, and content areas within the curriculum Even when faculty are not directly involved in item writing, PACAT can stimulate faculty involvement through the selection of area concentrations to be included in the exam. My own personal bias is that encouraging faculty to critically examine their curricula is one of the most important benefits of the assessment movement. If this self-examination does not take place, test scores will do little to improve a program's quality and effectiveness.

THE ROLE OF PACAT IN TENNESSEE

The primary function of PACAT in Tennessee is to provide measures of institutional and program effectiveness for the Tennessee performance funding program, which allocates a portion of public funds for higher education on the basis of the results of a series of assessment activities. Standard II of the performance funding guidelines awards funds, in part, on the basis of institutional means on cooperative tests, such as the PACAT Psychology exam. Because the objective of Standard II is to compare institutions on the basis of a single score, all Psychology Departments in Tennessee must use the same test to evaluate their programs.

Other programs, such as Social Work, Political Science, Art, and Biology, may elect to use the PACAT exams in their disciplines. For these programs, effectiveness is judged on the basis of score improvement from one administration of the exam to another. Because the performance funding guidelines do not allow institutions to alter more than 20% of a test's content from one administration to the next, there is little variation in the forms of the exam over time.

The fact that the PACAT exams must conform to the performance funding guidelines severely limits their utility for program improvement in Tennessee. Because a single version of the exam in Psychology must be administered at all public institutions, the PACAT's advantage of flexibility is lost. The fact that some institutions have used the exam to make program improvements is commendable, but other institutions have found the form of the exam required by the Tennessee Higher Education Commission to have limited utility in guiding curriculum reform and improving the quality of the learning environment for students.

The previously mentioned comparison of the PACAT and MFAT exams in Psychology indicates that, while the content of the PACAT is judged to be somewhat more appropriate than the content of the MFAT, and while scores on the PACAT have slightly higher correlations with coursework than do scores on the MFAT, none of these correlations are are statistically significant. I have little doubt that if the Psychology department at UTK was given an opportunity to select from the various area concentrations in psychology that are available, it would be able identify a test that is related to patterns of course-taking in psychology. I also believe that the scores from this "tailored" exam would provide information that would be used to improve student learning.

Even in fields where a single exam is not prescribed for the entire state, the performance funding guidelines limit flexibility by requiring that scores be comparable across administrations. If a department is successful in making meaningful changes in its curriculum, it is only natural that the department would want to subsequently modify the exam to better reflect the new curriculum. This option is severly limited in Tennessee.

The fact that a single, unchanging form of the PACAT examinations must be used in Tennessee also limits the extent to which faculty can be motivated to use test results for program improvement. Given the nonsignificant correlations between the PACAT Psychology exam and coursework at UTK, it is not surprising that faculty have shown little interest in examining their courses. Instead the prevailing philosophy is to "get the money and run." In fact, to revise the curriculum simply to improve PACAT Psychology scores would constitute "teaching to the test," rather than a genuine attempt at program improvement. It is important to remember that these limitations in the usefulness of the PACAT exams are products of the Tennessee performance funding program, not the exams themselves.

For the future, I do hold some hope that the current deliberations by the Performance Funding Advisory Committee and a proposed evaluation of performance funding by an external agency will create a climate in which tests, such as those offered by PACAT, will be used to improve programs and enhance student learning in Tennessee. The potential for encouraging meaningful program improvement is enormous. Dr. Golden may want to consider making a formal presentation to the Performance Funding Advisory Committee concerning ways in which the PACAT exams could be better used in Tennessee.

THE ROLE OF PACAT AT APSU

After speaking to several administrators at Austin Peay, I have the feeling that the PACAT is one of the best kept secrets on that campus. Not surprisingly, the PACAT exam in Psychology is being used by the Psychology department to critically review its curriculum and to make meaningful program improvements since this is Dr. Golden's discipline. However, I did not detect a similar commitment on the part of other departments. Perhaps this is because other departments are simply not aware of the potential benefits of the areas concentration exams. If the problem is lack of awareness, the fact that Dr. Golden recently received the Hawkins' Award and was given an opportunity to describe the PACAT program to the faculty may help to expand its use.

If there is not a growing interest in the use of area concentration tests at APSU during this coming year, the PACAT staff may want to consider working with senior administrators, such as Dr. Linda Rubolph, in developing ways to encourage APSU faculty to become more involved in the program. One way in which administrators may be able to encourage the use of PACAT's resources would be to link this program with APSU's participation in the Deming Quality Improvement program that will begin there this year. This linkage offers the possibility of improving both the quality of academic programs at APSU and suggesting new ways of reporting and using PACAT test results.

CONTINUATION OF PACAT

Given the enormous potential of PACAT, I am very concerned about the future of this program after FIPSE funding is no longer available. APSU has been very supportive of the program in terms of meeting its physical requirements (e.g., computer hardware, office space, etc.). However, operating funds at APSU are limited and the support that can be provided may not be sufficient to allow PACAT to continue at its present level or, more important, to expand.

Dr. Golden is already making every effort to secure outside funding for the program. He has, for example, asked the Tennessee Higher Education Commission to help support the program. I must admit to being somewhat skeptical about THEC support. First, I am not sure that the Commission with be willing to provide funds for operating the program outside Tennessee. Second, I am concerned that without a significant change in the philosophy of performance funding, THEC support for PACAT will result in a less flexible approach to test development, and a dilution of the program's benefits. Overall, I would strongly recommend that PACAT, with the assistance of FIPSE, seek operating funds for the program either from private sources or from another federal agency.

RECOMMENDATIONS

Overall, my exposure to the PACAT program leads me to believe that this is one of the best methods of obtaining outcomes data concerning student achievement in the major. The program has real potential for making significant learner-centered improvements in higher education However, I do think that the full potential of the program has not been realized in Tennessee or at Austin Peay State University. I am also concerned that without additional support form external agencies, the program will not be able to continue at its present level or expand once FIPSE's financial support is no longer available. Based on my concerns, I would offer the following suggestions to the PACAT staff:

- PACAT should aggressively seek to influence the direction of the next five-year performance funding program cycle. The structure of the present performance funding guidelines inhibit using the area concentration exams to their fullest potential, and absent specific recommendations from PACAT, I do not foresee changes in the standard on assessment in the major that would encourage the use of achievement test scores to improve student learning.
- Linkages should be established between PACAT and the Deming Quality Improvement Program being instituted at APSU. This could help ensure wider use of the PACAT on campus and could suggest new methods of reporting and/or utilizing test results that would have important applications beyond APSU.

- PACAT, with assistance from FIPSE, should actively seek funds from private and/or federal sources to ensure the continuation and expansion of the program. Reliance on the Tennessee Higher Education Commission as a source of operating funds should be minimized.

SUBMITTED BY:

Gary R. Pike 10-31-90

Gary R. Pike (Date)

Review of the Area Concentration Achievement Testing Program

A review of the Area Concentration Achievement Tests (ACATs) and associated scoring and reporting features is indicated in the application for project approval by the Fund for the Improvement of Postsecondary Education. In conducting this review, I had access to the application, to examples of the psychology and political science achievement tests, to the "PACAT Process Description" (an internal working document dated August 1, 1990), to user information available from the Project for Area Concentration Achievement Testing (PACAT), and to three professional papers describing the project and its instruments. This review addresses the question of appropriateness of the general procedures followed. Detailed concerns and suggestions for other procedures and services that might be offered have been communicated to the project director.

The rationale behind the ACATs

The legislative need to monitor the learning of college students in their disciplines of major study is evidently one important impetus for the development of the ACATs. The creators of the PACAT argue that both locally developed and nationally standardized achievement tests would not be optimum for satisfying the need. Local tests can be self-serving and lack internal quality and the ability to make comparisons in performance with similarly situated colleges. Nationally standardized achievement tests can measure content that does not match in either coverage or emphasis the local program and can be a force to change the curricula of the individual college to conform with that measured by the test.

The ACATs have the potential to mitigate the shortcomings of both local and nationally standardized tests. By pooling resources, the

BEST COPY AVAILABLE

cooperating institutions can develop tests that reflect rather than determine the institutions' curricular emphases, that permit comparisons among institutions, and that exceed the quality expected if only a single institution was responsible for the tests' development.

Thus, I find the rationale and general approach taken by PACAT to be reasonable and appropriate.

Creating the item pool

The items that make up the ACATs are contributed by participating faculty from several colleges. Commendably, faculty have available item-writing instructions prepared by PACAT staff that go beyond the mere mechanical requirements for submitting items. Nevertheless, the absence of any serious checking of item accuracy means that poorly conceived items can enter the pool. If such items generate poor item statistics once they appear in an operational form of the test, they can be eliminated. But poorly conceived items do not necessarily have associated with them poor item statistics. Although I was not asked to review the tests item by item, in part because I do not have the subject matter competence to do so, I did review items in an area of my expertise and found 10 of 40 items that I felt were flawed and should not have been included in the ACATs. Other items could have been improved, although their integrity was not compromised. When inclusion of items depends only on the nomination of a single faculty member, it is not surprising that less than meritorious items will find their way into the tests.

Aside from the issue of quality control, the items that faculty write and submit may over-represent areas that are easiest to measure. Thus, although each item may properly be a measure of a content area within the discipline, the item pool as a collection may not be representative of the full range of content within the area or of the full range of skills in dealing with the content. Again, I noticed that in the one area I reviewed (statistics), some topics were heavily questioned and recall of terms were emphasized at the expense of questions measuring higher-level thinking skills.

I would recommend that a small group of able faculty from each content area review the items in the pool from that area with respect to individual item accuracy, balance of subtopics, and inclusion of an appropriate range of skills. New items should be submitted to such review before they appear on new forms of the tests.

Putting the ACATs together

Tests are presently assembled for an institution by putting together those content areas appearing as an integral part of the curriculum for the major in that institution.

Each form of the ACATs has four versions. Two versions contain different, but similar test items, which make it possible for judgments about the level of proficiency in a content area to be based on twice as many items than otherwise. It is indeed the case that (to be concrete) 25 students answering one set of questions and a different 25 students answering a second set of questions will be more informative about the strengths and weaknesses of the curriculum than would submitting all 50 students to a single set of test questions. The other two versions consist of the same items used in the first two versions, but placed in a different order and with options scrambled. Such permutations guard against position effects (e.g., questions at the beginning of a test may get more attention and effort) and copying of answers. I applaud the use of multiple versions of each test form.

Each of the patterns of content areas that are represented by many institutions will be the basis of a form of the test. In this way, the majors in these institutions will be assessed on content to which they can reasonably be expected to have been exposed. The decision of having a finite number of different forms is appropriate and reasonable, although a case could be made for letting each institution put together its own form or for having a single form covering all topics and having even more than four versions of such a form.

Scoring the ACATs

Currently, not all correctly-answered items are worth the same number of points. Items with bad statistics are not counted at all (receive 0 points); items with poor statistics are given some points but not as many as items with good statistics. This scoring procedure can lead to the situation in which a student who answers more questions correctly than another student actually receives a lower score. Is the practice of differentially weighting items according to their statistics acceptable?

My answer is "yes", with some qualifications. Counting those items that do a better job of measuring achievement more than less efficient items is reasonable. The seeming anomaly of answering more items correctly but scoring less would appear to be little concern given PACAT's emphasis on curriculum evaluation over student evaluation. Beside, illustrations abound where overall merit depends on more than the sheer number of good deeds.

It is possible that the scoring weights, since they are determined completely empirically, could lead to some subtopics having less or more emphasis than intended. Also more optimum procedures exist for weighting the items than following the algorithm currently used.

In summary, I approve of the present scoring procedures. The project staff should be alert that the item collection for a content area, as weighted, represents well the content domain. The staff may wish to consider other models for determining the differential item weights.

Reporting results on the ACATs

Score reports are available showing individual student performance as well as school performance on each area and overall for the discipline. Results are expressed in both raw and standard scores. The reports are relatively easy to interpret.

No formal equating of different tests has been undertaken. Although the four versions of each test form are likely to be similar, some differences are bound to exist. Similarly, not all area tests will be exactly equivalent, so the aggregate score for the discipline for one institution may not be comparable to that for a different institution that employs different area tests in its assessment.

It may be that misinterpretations due to lack of strict equivalence in test reporting units are slight. Nevertheless, my recommendation would be carry out the formal equating work.

Overall statement

The PACAT is based on a sound rationale. Understandably, in the project's early stages, the staff was handicapped by limited human and financial resources and by modest usage. As the enterprise expands, the test development, scoring, and reporting procedures should add those psychometric practices that will permit the assessment program to achieve not only the high standards of the educational measurement community but also the ambitious goals it has set for itself.

Jason Millman
Ithaca, New York
September 1990

WINTHROP COLLEGE
1886

College of Arts and Sciences
Department of Psychology

August 4, 1992

Anthony J. Golden, Director
PACAT
P O Box 4568
Clarksville, Tennessee 37044

Dear Dr. Golden:

Thanks for inviting us to add comments which might be used for your report to FIPSE. The Department of Psychology at Winthrop University began using the Area Concentration Achievement Test in the Spring, 1990. We administer this test to graduating seniors each December and May. These test scores are used, along with a variety of data from other sources, as part of our departmental assessment program.

This instrument, and the PACAT staff, have contributed significantly to our assessment attempts. We will continue to administer the ACAT and look forward to continuing contact with you.

Sincerely yours,

Rondeau G. Laffitte, Jr.
Professor of Psychology

Rock Hill, South Carolina 29733
(803) 323-2117

THE UNIVERSITY OF ALABAMA

DEPARTMENT OF PSYCHOLOGY

June 9, 1992

Dr. Anthony J. Golden, Director
Project for Area Concentration
Achievement Testing
P.O. Box 4568
Austin Peay State University
Clarksville, TN 37044

Dear Dr. Golden:

I should like to comment upon my experiences with PACAT. We are engaged in two ongoing research projects and your testing service is essential to both.

1) At the University of Alabama we require that all graduate students in psychology teach an Introduction to Psychology course to a small class. The graduate students, themselves, enroll in a how-to-teach course, meet as a class and individually with the instructor, have their teaching performance evaluated in various ways, and take responsibility for grading and evaluating their undergraduate students. We have described this program in the literature on two occasions and we are presently testing the hypothesis that teaching the course increases the graduate students general knowledge of psychology. We have used your testing service to evaluate students who have taken the course compared to those waiting lists control students who will teach next semester.

2) Our most ambitious project relates to outcomes assessment for our undergraduate psychology majors. We have developed content profiles based on the twenty-one areas which you identified. PACAT scores will be the criterion for several of our hypotheses about our undergraduate curriculum offerings.

We are appreciative of all of the service which you have made available to us. In particular, we have appreciated your personal attention to, and interest in, our research projects. Many thanks!

Sincerely yours,

Henry C. Rickard

Henry C. Rickard, Ph.D.
Professor and Chairperson

pt

BEST COPY AVAILABLE

348 GORDON PALMER / (205) 348-5083 / BOX 870348, TUSCALOOSA, ALABAMA 35487-0348

THE UNIVERSITY OF TENNESSEE
MARTIN

Department of Psychology
325 Humanities Building
Martin, Tennessee 38238-5059
(901) 587-7530

June 8, 1992

Dr. Anthony J. Golden, Director
Project for Area Concentration Achievement Testing
P.O. Box 4568
Austin Peay State University
Clarksville, TN 37044

Dear Dr. Golden:

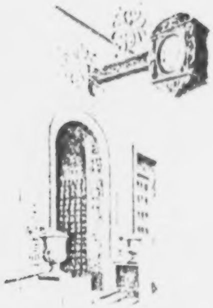
We have always found the service on the ACAT in Psychology to be very satisfactory. This instrument has been quite useful to our department in its assessment efforts.

Sincerely,

Gary E. Brown /bj

Gary E. Brown, Ph.D.
Chair

bj



Thomas Edison State College
101 West State Street
Trenton, New Jersey 08608-1176

Office Of Test Development
And Research
(609) 984 1140

February 18, 1992

Dr. Anthony J. Golden
Professor of Psychology
Director, PACAT
Austin Peay State University
P.O. Box 4568
Clarksville, TN 37044

Dear Dr. Golden:

Thank you for the survey inquiry in relation to Mathematics. Thomas Edison State College does not itself offer any instruction, so that most of the survey questions will have no appropriate basis for response. Our students are all nontraditional, working on a variety of degrees. They do offer mathematics coursework in these contexts, and for some of the degrees Calculus (Differential and Integral), Linear Algebra, and Statistics are required components. But I found no reference in our coursebook to any of the other courses specifically named on your General Purpose Data Sheet II.

I was pleased to learn of your continued progress. I heard you speak at the Montclair State assessment conference in spring 1990, and we lunched at the same table. I subsequently wrote to you, but your project is defined a little differently than the approach that this College will most comfortably adapt to. I myself thought that PACAT was a very sensible and exciting activity (words not often used to describe the same thing). If you return to Montclair this year I would like to catch up on it.

Good wishes for continued success.

Sincerely,

Tom Donlon

Thomas F. Donlon, Ph.D.
Director, Office of Test Development and Research

cmb
Enclosure
1514X

BEST COPY AVAILABLE

UNIVERSITY OF ALASKA ANCHORAGE

3211 Providence Drive
Anchorage, Alaska 99508

COLLEGE OF ARTS AND SCIENCES
Department of Psychology
(907) 786-1711

July 7, 1992

Anthony Golden, Ph.D.
Director
Project for Area Concentration Achievement Testing
P.O. Box 4568
Clarksville, TN 37044

Dear Dr. Golden,

This letter is in response to your request for feedback on our experience with the PACAT. We have just finished our second year of participation and find the PACAT in Psychology to be a useful curriculum assessment aid.

All of our majors are required to take an exit test as a graduation requirement. No specific score is required - we view the test as program development tool rather than an individual assessment instrument. Presently our students can either take the PACAT or the Psychology subtest of the GRE to meet the exit test requirement. The requirement went into effect beginning with the 1990-1991 university catalog, so each year a larger number of graduating seniors take the exit test. Last year 50% of the graduates were included in the PACAT sample.

The principal benefit to us from participation in the PACAT program is that the test scores cause us to think about the quality of our program. The PACAT reports focus attention on the outcome of our curriculum in terms of students´ knowledge about specific content areas. This has been helpful and resulted in thoughtful discussions and some program changes. The PACAT is flexible enough that we don´t feel our curriculum is being driven by the test. The freedom to alter the PACAT profile effectively removes this pitfall of outcome testing. The exit test requirement also serves us by making a public commitment to program quality. We plan to keep using the PACAT. The relatively low cost makes it an especially attractive program development aid during financially difficult times.

Let me also mention that we have enjoyed the good service we have received from the personnel at Austin Peay.

A DIVISION OF THE UNIVERSITY OF ALASKA STATEWIDE SYSTEM OF HIGHER EDUCATION

Let me suggest one small improvement. As I understand it, group statistics for an institution are computed on each batch of answer sheets submitted for scoring. For our purposes, we would like to have one summary report per academic year even though we submit answer sheets each semester. Presently we administer the test three times per year but hold the answer sheets until spring so we can get them all included in one report. This gives us the largest possible sample for comparison with other programs. Students who took the test early in the year must wait until summer to get their scores. (We supply each student with stanine scores for information purposes.) So my suggestion is to allow institutions to request that a single complete report be issued each year. If this involves extra work, a charge for this service might be appropriate. Smaller batches of answer sheets could then be submitted as collected and a grand report issued once a year.

We hope the PACAT program continues.

Sincerely,

Robert J. Madigan, Ph.D.
Professor

cc Richard Bruce
Undergraduate Program Coordinator

From: IN%"U56076@UICVM.BITNET" "Stephen D. Spangehl, Associate Director"
To: "Anthony J. Golden (615) 648-7451" <anthony@APSU.BITNET>
CC:
Subj: PACAT

Return-path: <U56076@UICVM.BITNET>
Received: from JNET-DAEMON by APSU.BITNET with PMDF#10313; Thu, 1 Oct 1992
11:20 CST
Received: From UICVM(MAILER) by APSU with Jnet id 6944 for ANTHONY@APSU; Thu,
1
Oct 92 11:20 CST
Received: by UICVM (Mailer R2.07) id 3733; Thu, 01 Oct 92 11:19:05 CDT
Date: 1 October 1992 11:15:35 CDT
From: "Stephen D. Spangehl, Associate Director" <U56076@UICVM.BITNET>
Subject: PACAT
To: "Anthony J. Golden (615) 648-7451" <anthony@APSU.BITNET>
Message-id: <03FA8BB900600B14@APSU.BITNET>
Comment: "North Central Association"
Comment: "Chicago, Illinois"
Comment: "(800) 621-7440"

Thanks for send me the info on your ACAT tests; I'm very impressed by what appears to me to be the most useful means I yet seen to collect this sort of data on academic achievement in the major. I'm so impressed that I gave your name to Don Wright (at Arkansas State U) and Linda Mann (at the Council of Independent Colleges) -- I hope you don't mind. Please keep me in mind and let me know of future developments, or of particular campuses where the ACAT tests are being used as part of an overall assessment program.

Thanks again. --Steve

BEST COPY AVAILABL